

Cuba against any Western city would result in a FULL RETALITORY STRIKE ON RUSSIA. There was no risk of nuclear war then except by accident, and Kennedy had in his 25 May 1961 speech on "Urgent National Needs" a year and a half before instigated NUCLEAR SHELTERS in public basement buildings to help people in cities survive (modern concrete buildings survive near ground zero Hiroshima, as proved by declassified USSBS reports kept covered up by Uncle Sam). NOE THAT THERE IS A CREDIBLE THREAT OF NUCLEAR TESTS AND HIROSHIMA TYPE INTIMIDATION STRIKES, THE BBC FINALLY DECIDES TO SUPPRESS NUCLEAR NEWS SUPPOSEDLY TO HELP "ANTI-NUCLEAR" RUSSIAN PROPAGANDA TRYING TO PREVENT US FROM GETTING CREDIBLE DETERRENCE OF INVASIONS, AS WE HAD WITH THE W79 UNTIL DISARMERS REMOVED IT IN THE 90s! This stinks of prejudice, the usual sort of hypocrisy from the 1930s "disarmament heroes" who lied their way to Nobel peace prizes by starting a world war!

The facts from Hiroshima and Nagasaki for the shielding of blast and radiation effects by modern concrete buildings in the credible nuclear deterrence of invasions (click here for data) which - unlike the countervalue drivle that failed to prevent WW2 costing millions of human lives - worked in the Cold War despite the Western media's obsession with treating as Gospel truth the lying anti-nuclear propaganda from Russia's World Peace Council and its allies (intended to make the West disarm to allow Russian invasions without overwhelming, effective deterrence or opposition, as worked in Ukraine recently)!

Realistic effects and credible nuclear weapon capabilities are required now for deterring or stopping aggressive invasions and attacks which could escalate into major conventional or nuclear wars. Credible deterrence necessitates simple, effective protection against concentrated and dispersed invasions and bombing. The facts can debunk massively inaccurate, deliberately misleading CND "disarm or be annihilated" pro-dictatorship ("communism" scam) political anti-nuclear deterrence dogma. Hiroshima and Nagasaki anti-nuclear propaganda effects lies on blast and radiation for modern concrete cities is debunked by solid factual evidence kept from public sight for political reasons by the Marx-media, which is not opposed by the fashion-obsessed remainder of the media, and so myths sneak into "established pseudo-wisdom" by the back-door.

Tuesday, May 03, 2011

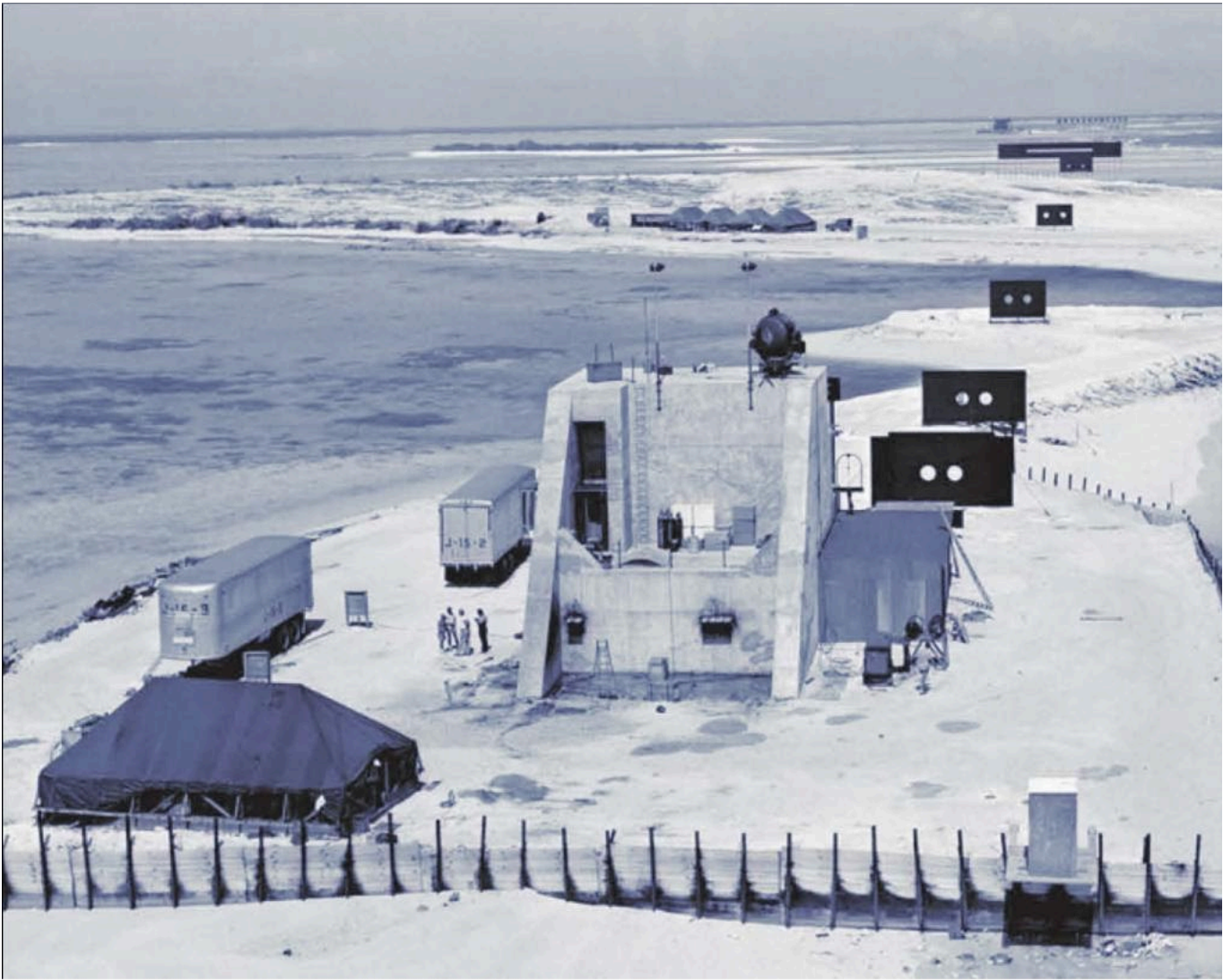
Declassified data on structures exposed to nuclear weapons tests in the Pacific

Mk 17 thermonuclear weapon13.5 megaton Castle-Yankee aboard barge over Union
crater near Yurochi Island, Bikini Atoll (surface burst)**40% Li6, 60% Li7; 52% fission**

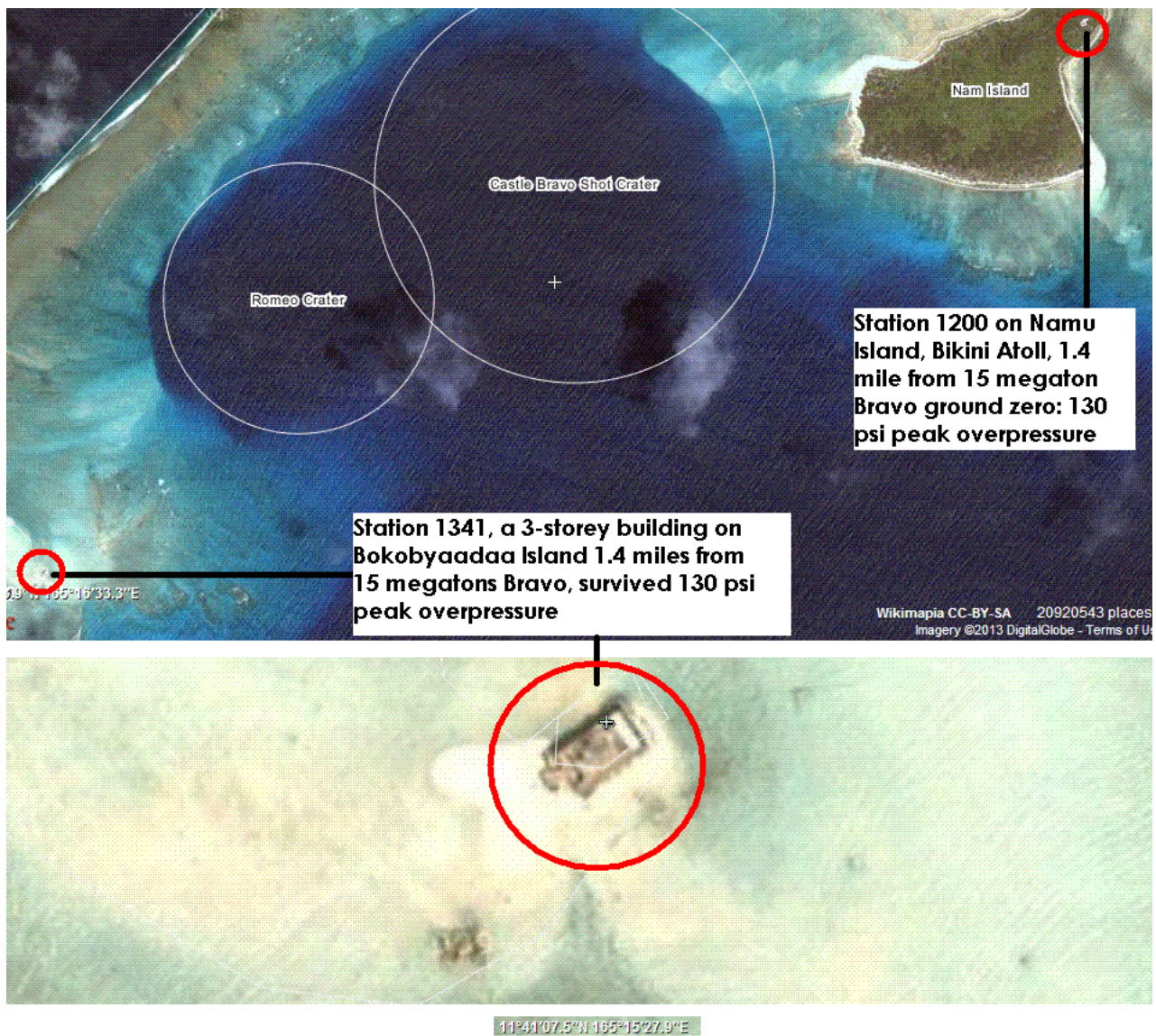
Castle Yankee 13.5 megatons.



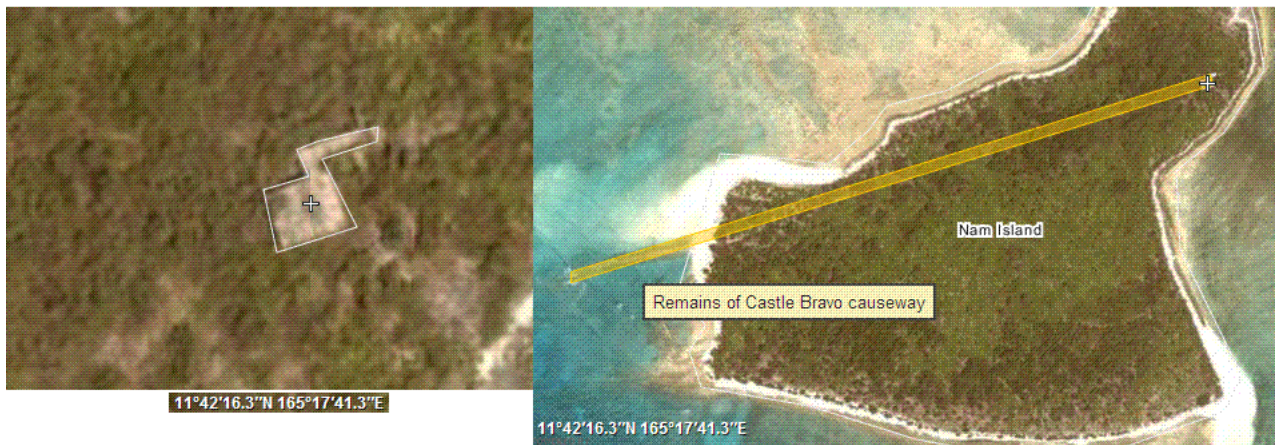
Castle-Bravo 12 vacuum tube array from bomb.

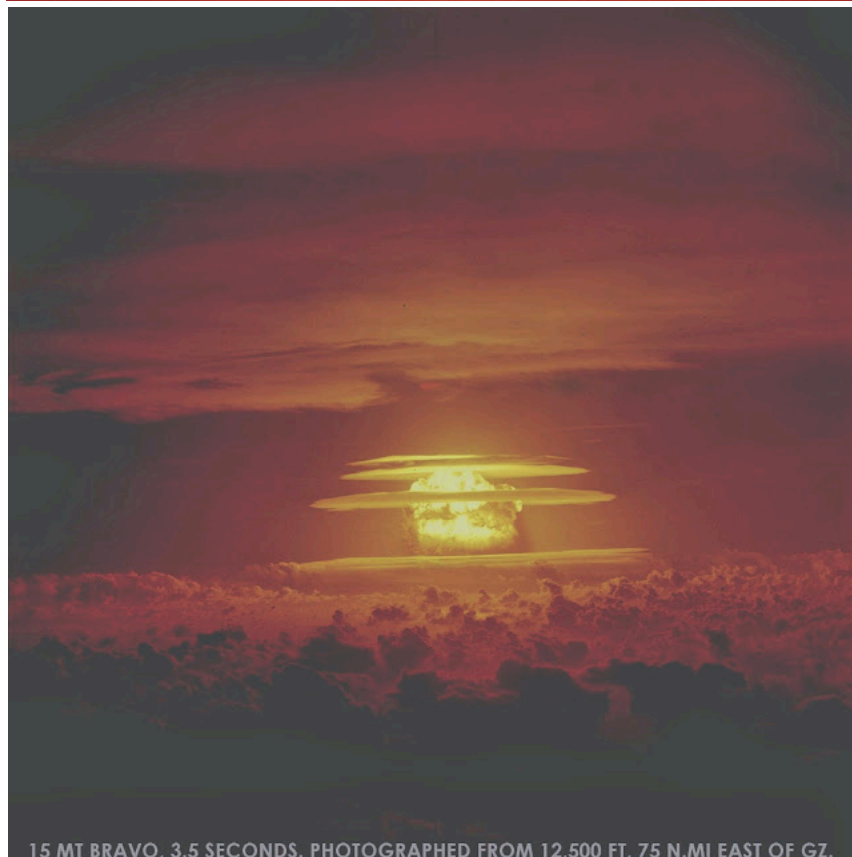
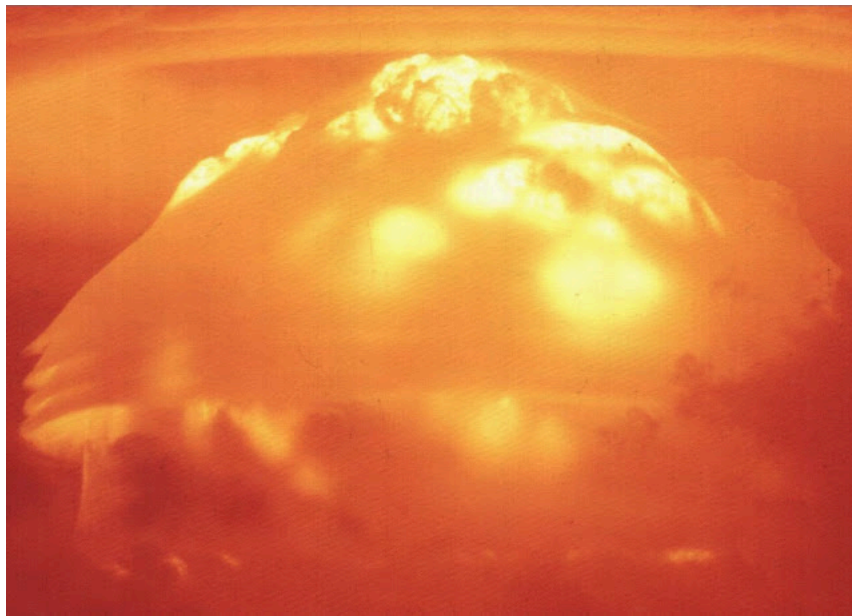


Looking from above-ground concrete building towa



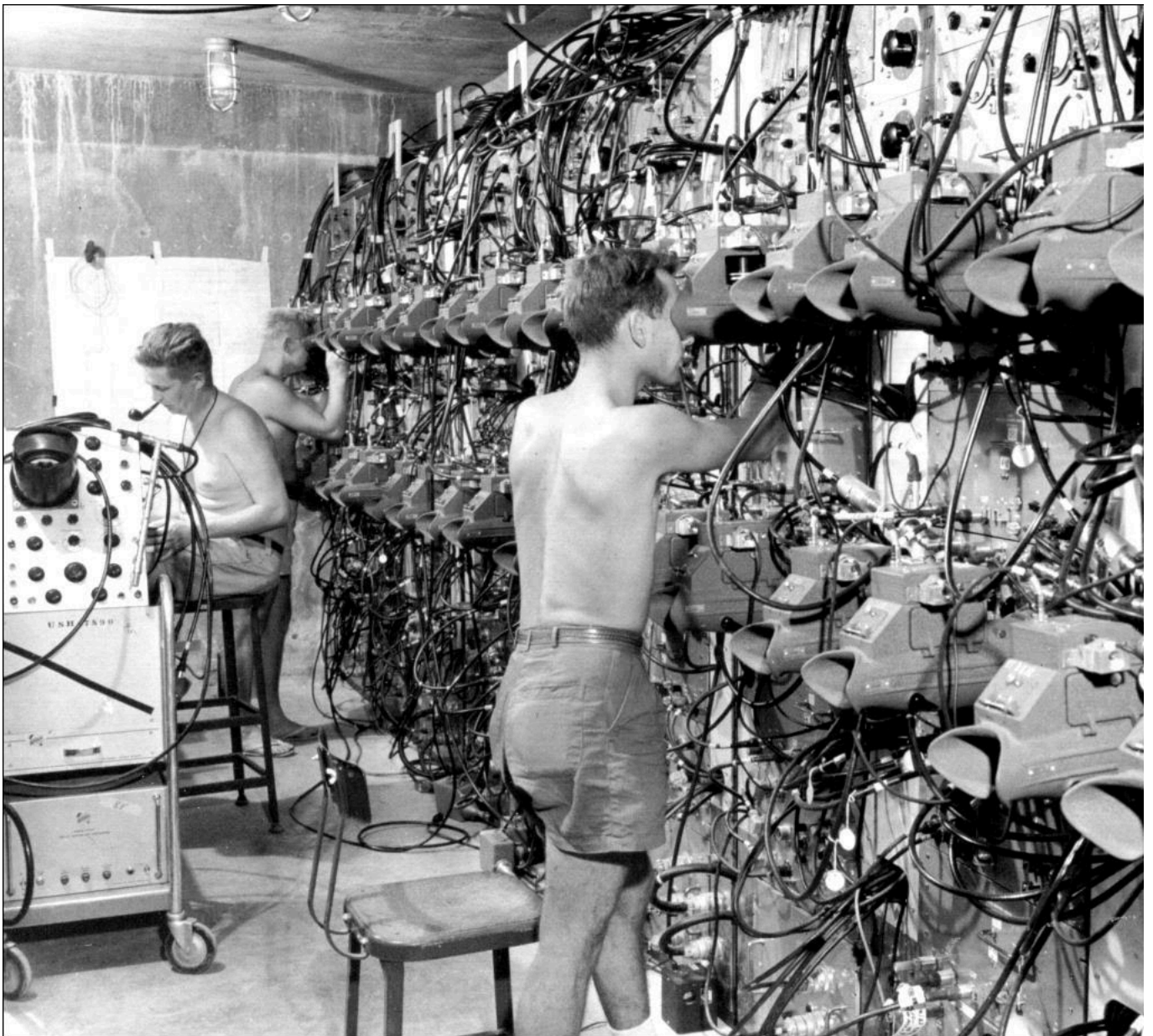
Still there today: Station 1200, 1.4 mile from Bravo...



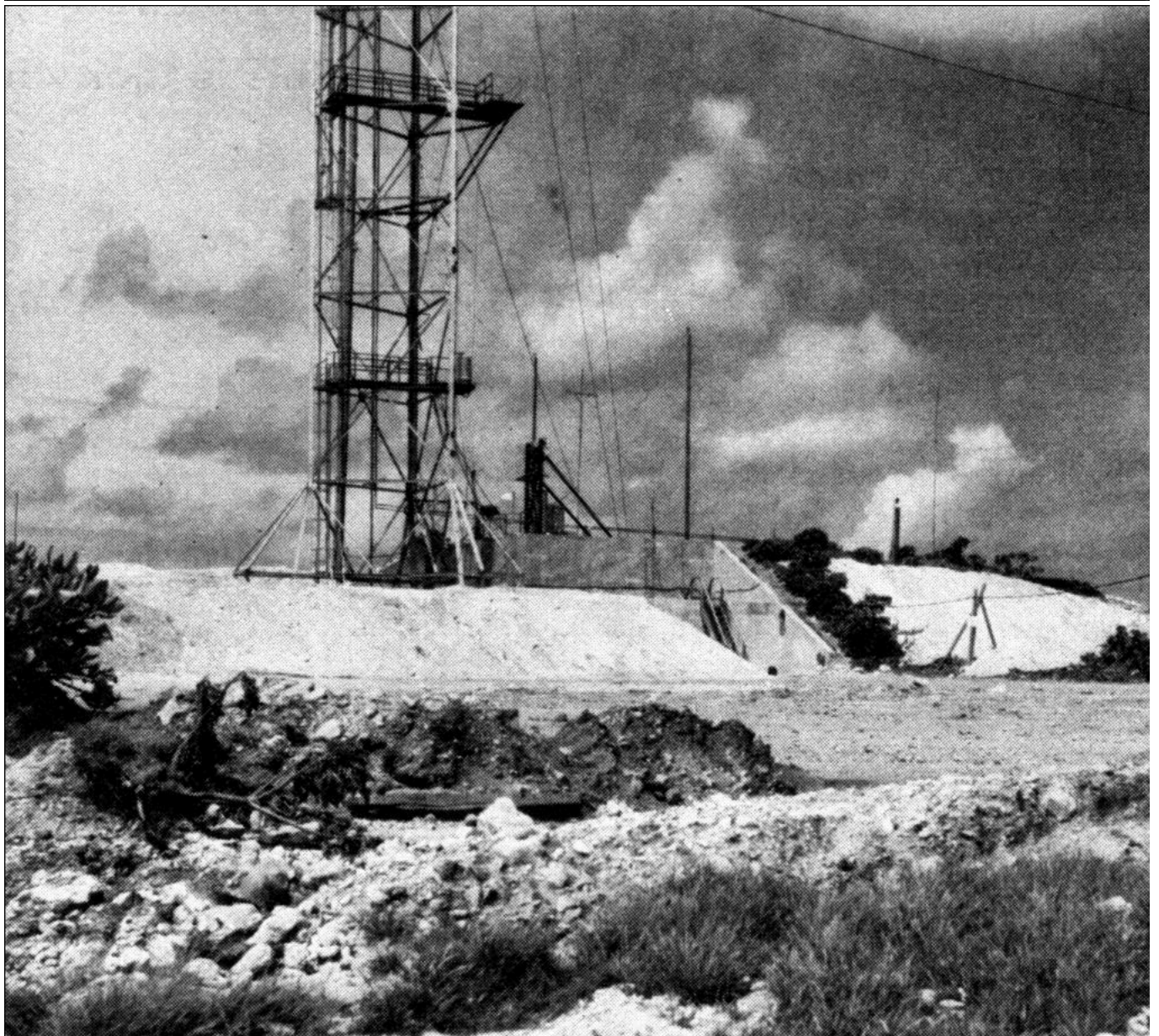
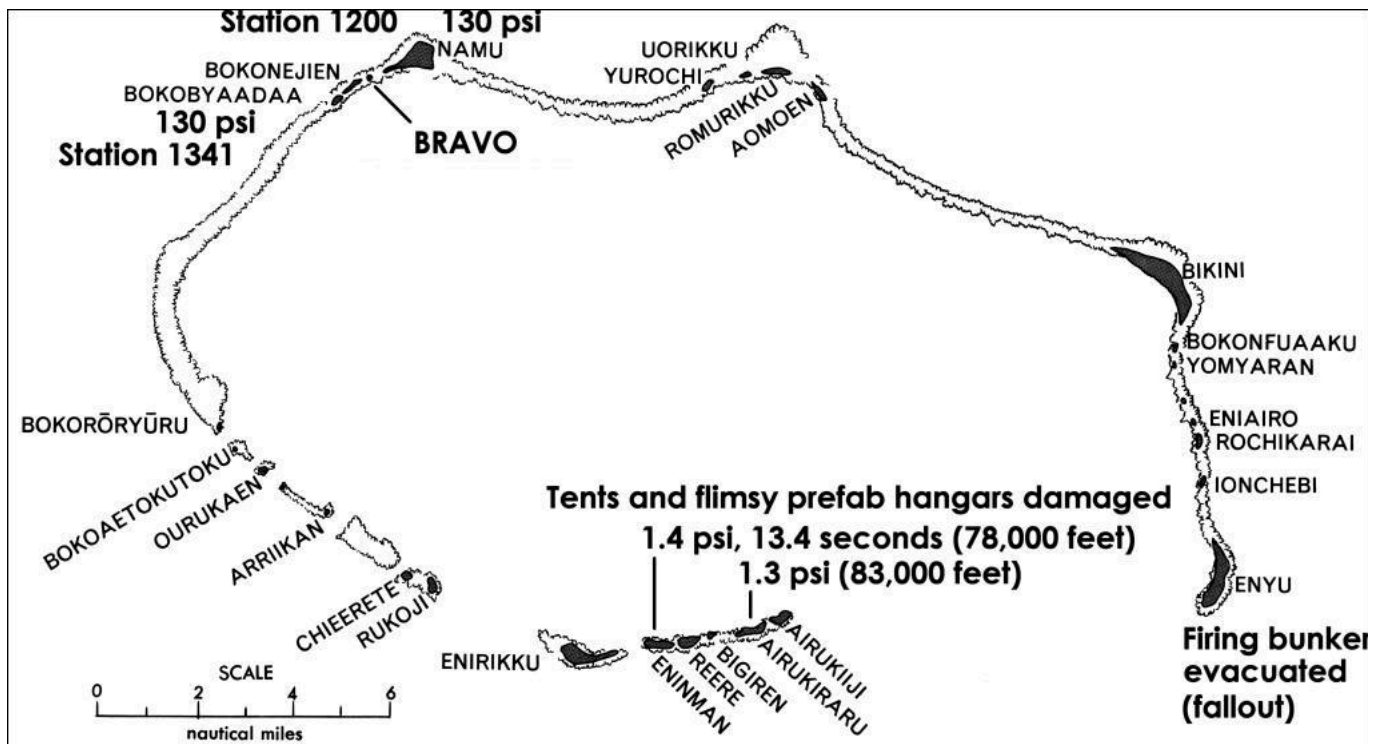




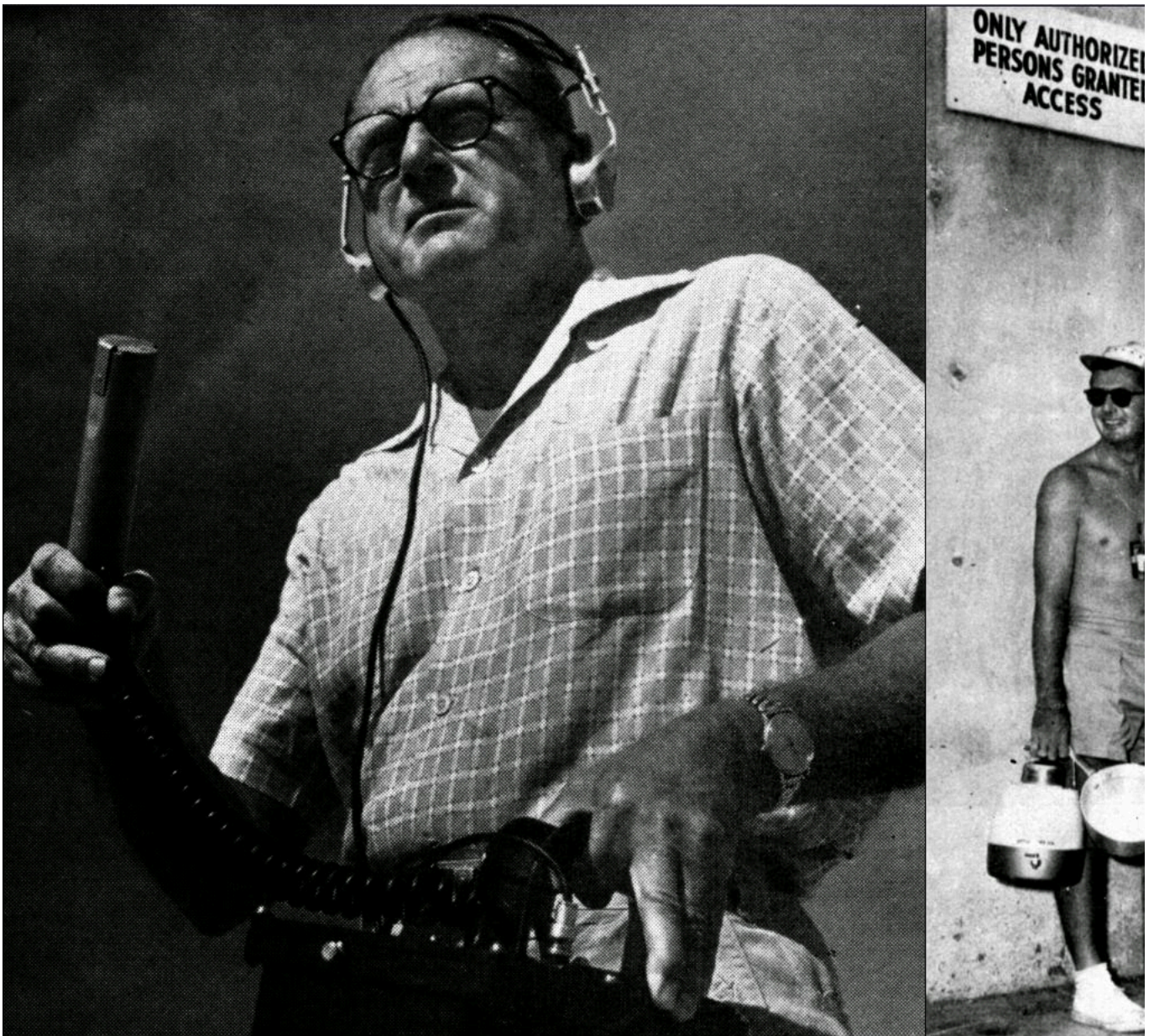
15 MT Bravo (USS Curtiss at 33 mi SE).



Bravo pipeline end in shelter with 36 oscilloscope cameras to record radiation (station 1200 shelter,



Enyu Island, Bikini Atoll, occupied by 9 crew during the 15 megaton Bravo test, 1 March 1954. Shielded radiation from heavy fallout, se



John C. Clark, Bravo firing party commander at the Enyu Island shelter measured

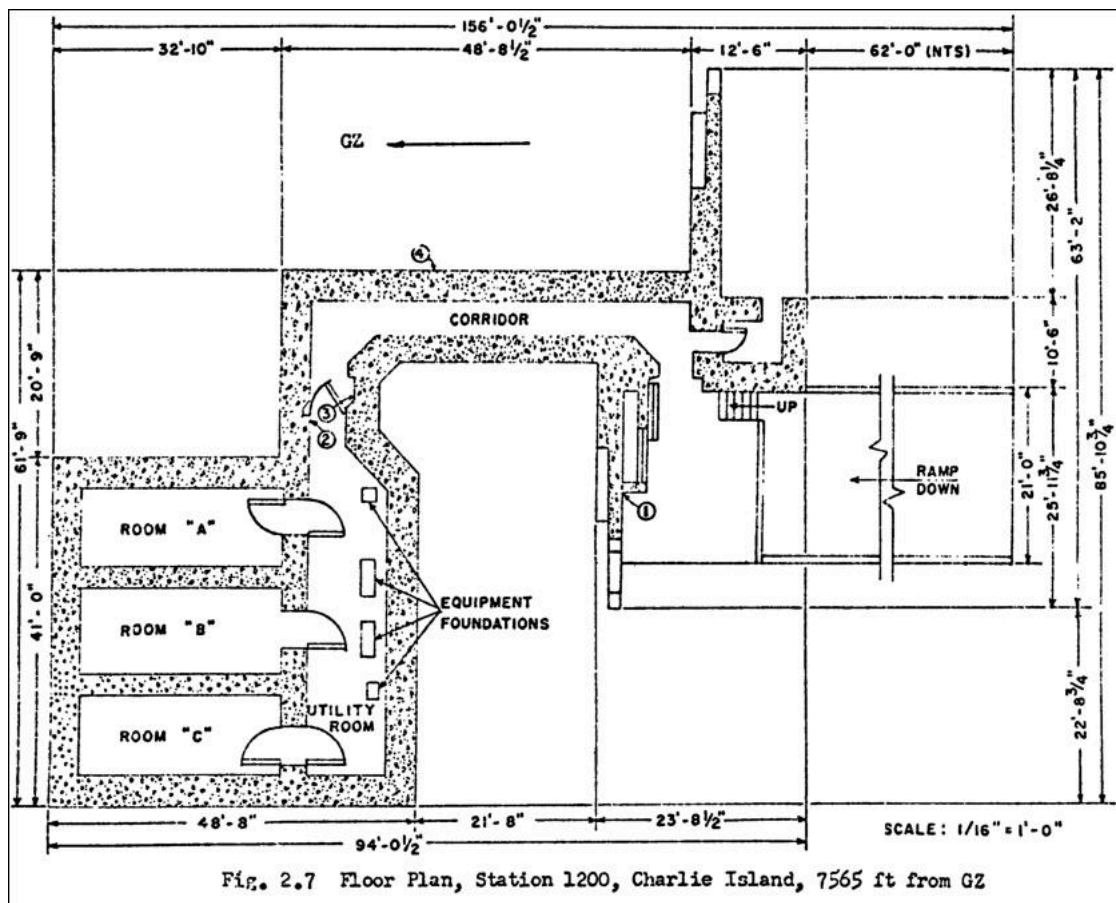


Fig. 2.7 Floor Plan, Station 1200, Charlie Island, 7565 ft from GZ



The pipes along the causeway from the Bravo bomb to Namu (Charlie) island were Dr Sterling Colgate's experiment to measure Bravo's thermonuclear burn rate: piping collimated neutron radiation inside 12 vacuum pipes each of 15 cm diameter, extending 1.4 miles from the bomb to Station 1200 (the shelter located at the far end of Namu Island, still there today). These vacuum pipes, to minimise absorption of the collimated neutrons, replaced the Krause-Ogle helium-filled box used at the so-called "Ganex" GAMMA-Neutron EXperiment in the 1952 Mike test, where secondary gamma rays from neutrons striking Mike's steel case travelled through helium, arriving with little attenuation before the neutrons. The 14 MeV neutrons arrived at the detector before the tube was destroyed by blast near the bomb, and travelled faster than the lower energy neutrons, allowing the spectrum of the neutrons to be determined simply by using the time-of-arrival discrimination method.



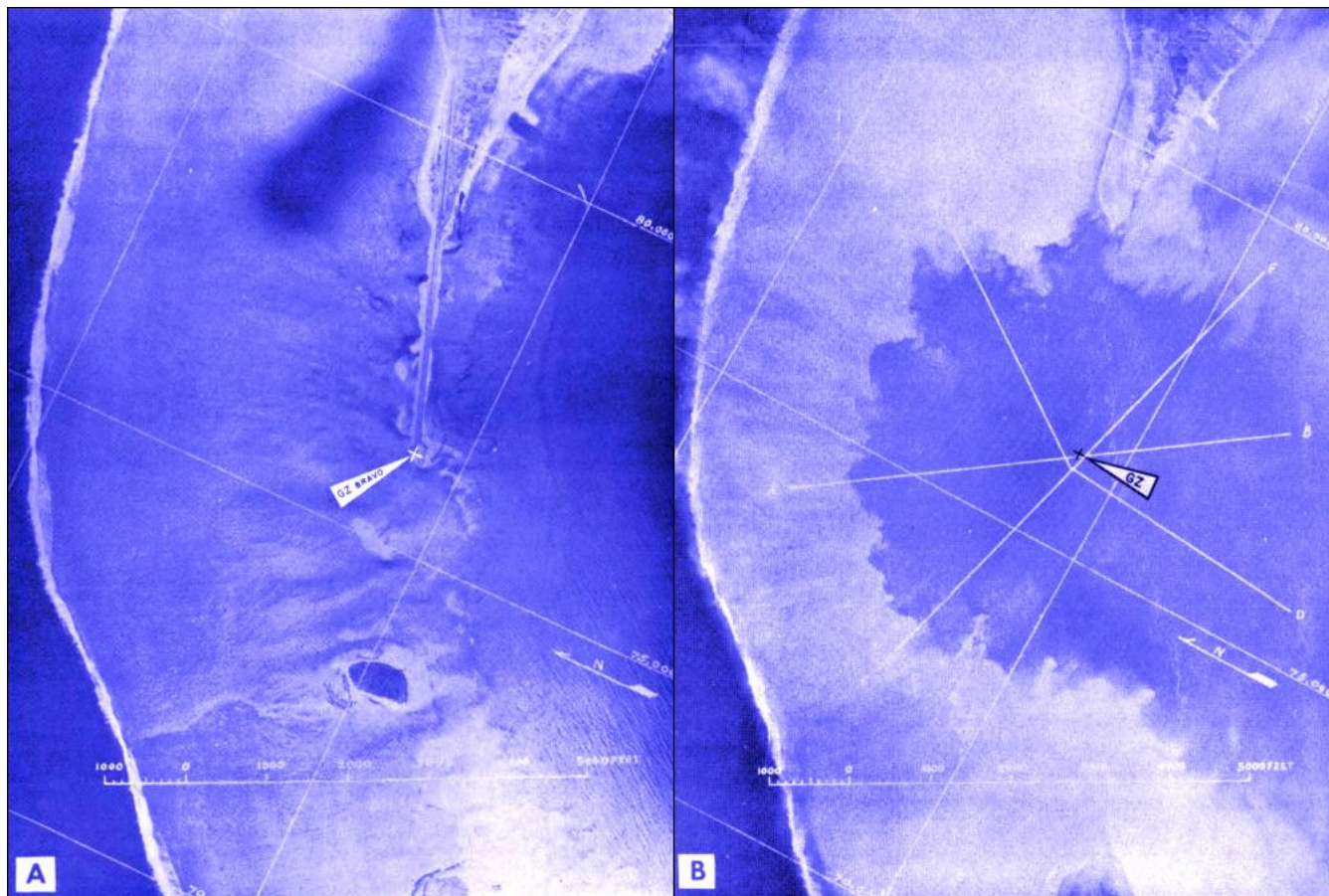
Bravo 15 Mt bomb arriving at Namu Island on 20 Feb. 1954



Above: above ground shelter survived 130 psi peak overpressure and fireball engulfment from 15 megaton Bravo nuclear test. Station 1200 on Namu ("Charlie") island, Bikini Atoll, survived just 1.4 miles from 15 megaton Castle-Bravo nuclear bomb test, despite being

designed to withstand only 50 psi from the predicted 6 megaton yield. This shelter was connected directly to the nuclear bomb by Colgate's 12 neutron-carrying vacuum pipes (seen extending to the bomb in the photo above). Bravo's predicted yield was 6 Mt, but was unexpectedly boosted by a factor of 2.5 when Li-7 (60% of Bravo's lithium) was fissioned into tritium by 14 MeV neutrons. Bravo's crater (before and after photos) is shown below and comes up to the edge of Namu Island, but Station 1200 was intact despite ground shock; please remember that **coral is easily crushed by the blast, unlike ordinary silicate soil, so craters on a city will be much smaller, even if you forget the error due to ignoring gravitational potential energy for excavating in the Glasstone and Dolan crater scaling laws.**

"This structure [Station 1200] proved remarkably resistant to very high blast pressures. ... The structure performed its mission despite an overpressure [130 psi incident peak overpressure, before more than doubling due to blast reflection], almost three times that for which the structure was originally designed." - **Wayne J. Christensen, *Blast Effects on Miscellaneous Structures, Operation Castle, Project 3.5, July 1955, Secret - RD, WT-901, page 27.***



Wayne J. Christensen explains in weapon test report WT-901 (*Blast effects on miscellaneous structures, Operation Castle, Project 3.5, July 1955, Secret - Restricted Data*) that Station 1200 on Namu Island (codenamed Charlie Island for security) at 7564 ft from Bravo, and Station 1341, a 3-storey above ground reinforced concrete building on Bokobyadaa Island (Able Island) at 7500 ft from Bravo, survived about 130 psi peak overpressure. **Castle weapon test report WT-934, *Operation Castle, Summary Report of the Commander, Task Unit 13, Military Effects, Programs 1-9* (1959) explains on page 61: "These shelters maintained their structural integrity, but failed functionally because of detail failure."**

The detail failures were things like a blast doors (facing the blast) being forced into Station 1341. This blast door was however not shut but actually *open at the moment of explosion to allow instruments to observe the fireball growth*, and then a gadget tried to slam the door shut automatically just before the supersonic blast wave arrived (a feature that depended on the exact yield, because the arrival time is much faster than sound within the fireball radius). The easy swing-close door, designed for only 50 psi incident overpressure, was forced in by 130 psi from the unexpected 15 megatons yield of Bravo.

When the second shot of Castle, 11 megaton Romeo, was fired on a barge moored over the Bravo crater, it subjected Station 1341 to 95 psi peak overpressure which blew off the already cracked 3rd floor (see WT-1631 / AD 355505, page 21, linked here). But what do you expect after 130 psi from 15 megatons and then 95 psi from 11 megatons? The point is, the two lower floors of Station 1341 survived both multimegaton onslaughts. But Castle was only a start. **In 1958, 9.3 megaton shot Hardtack-Poplar subjected Station 1341 to 350 psi peak overpressure and a ground shock which caused a peak floor slab acceleration of 210 g's (210 times normal gravity), which sheered off the cracked 2nd floor (see page 33 of WT-1631).** But even then, the first floor survived! See photo at top; the thing is still at Bikini Atoll today!



15 megaton Bravo: nuclear lightning bolt to right of fireball



1 kt of energy channeled in the 12 vacuum pipes towards Station 1200 from the Bravo bomb casing, creating the secondary fireball visible moving leftwards from ground zero in this film. S tirling Colgate explains in Los Alamos Science magazine in 2003 (issue 28, 2003, Figure 1 on page 39) explains: "Less obvious was a late worry that a 'fireball' of energy might travel along the pipe lines [just as X-ray energy flows like a fluid from the primary to the secondary stage within a thermonuclear weapon]. ... Later pictures showed a fireball of 1 kt equivalent energy travelling along the pipe lines ..."

At Eniwetok Atoll, structures were torn down in 1979 during the decontamination process (most of the danger was from unexploded WWII shells remaining from the Japanese occupation of Eniwetok, not fallout). Photo below shows a typical shelter surviving intact after several H-bomb tests over on Eniwetok Atoll in 1977, before the clean up operation of 1977-9 (see the 1957 edition of Glasstone's Effects of Nuclear Weapons - not later editions - for the internal blueprint of a standard 100 psi peak overpressure nuclear tested shelter):



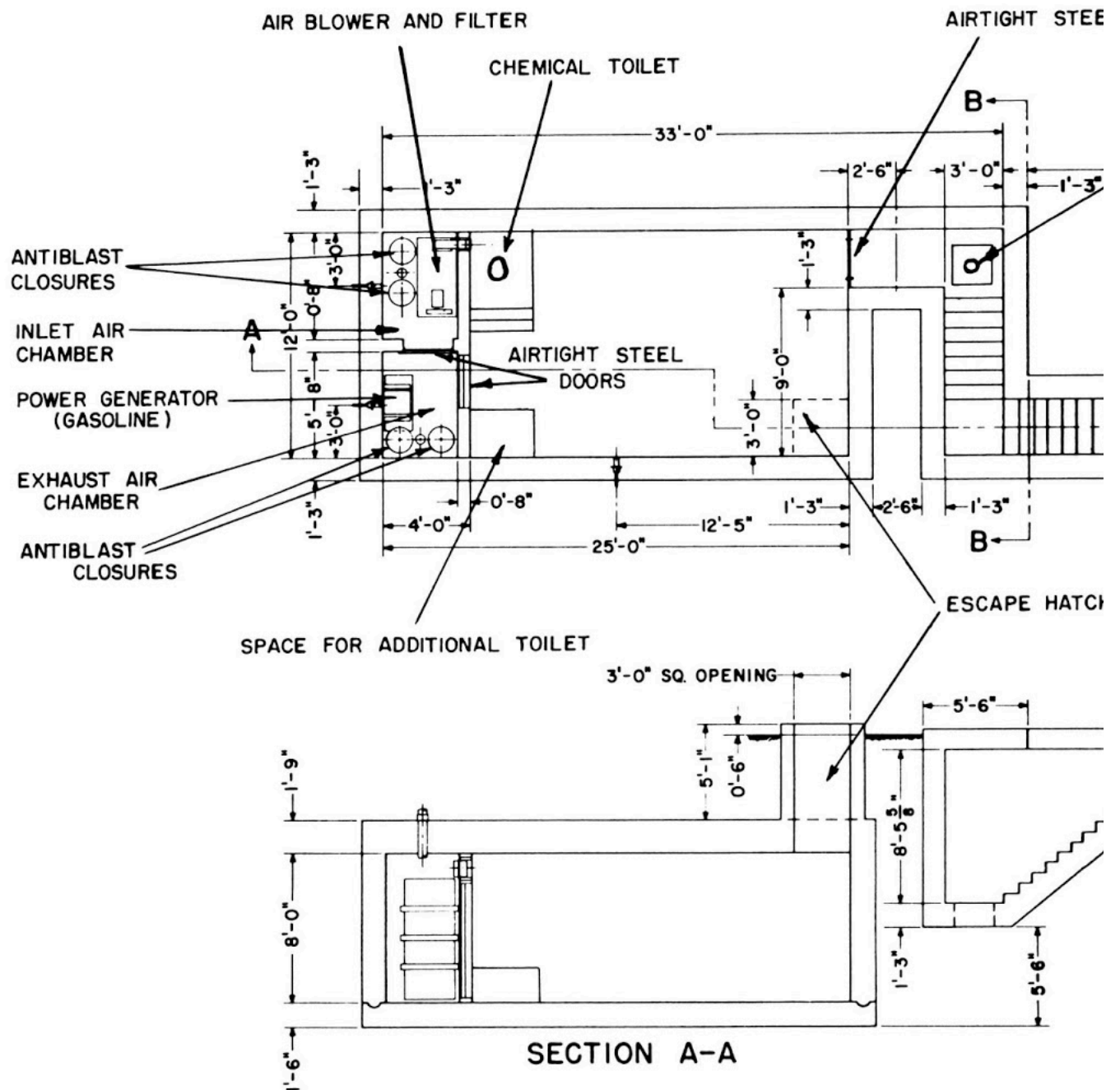
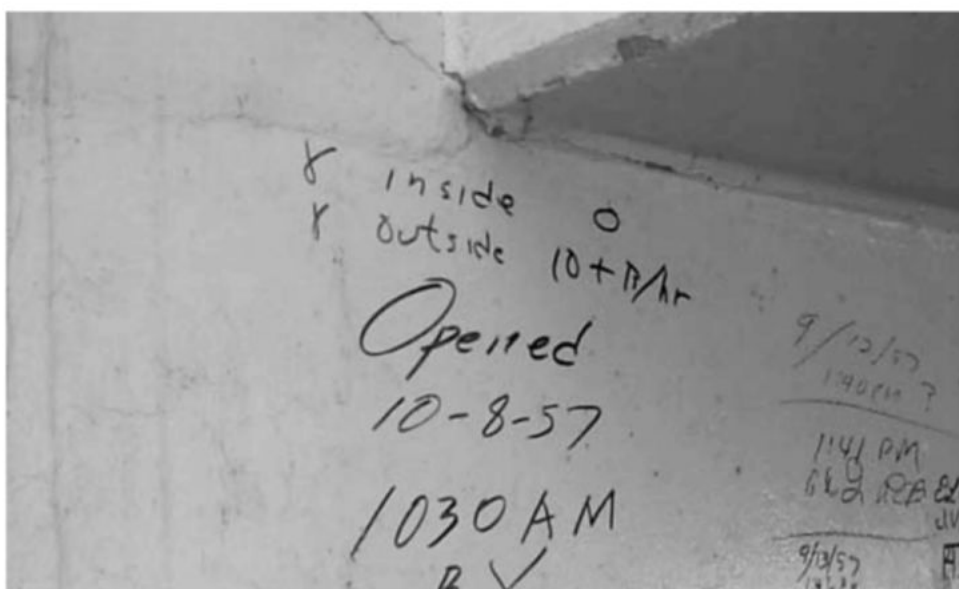


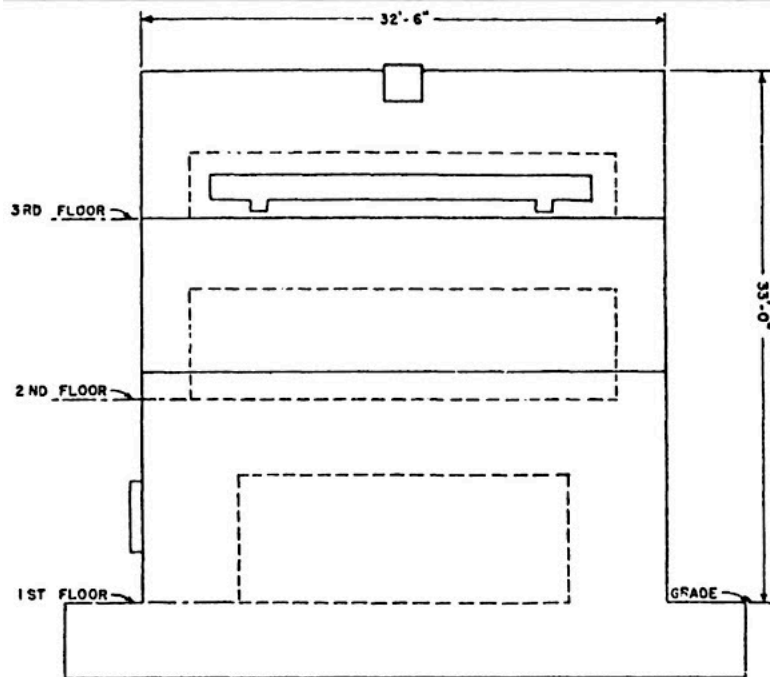
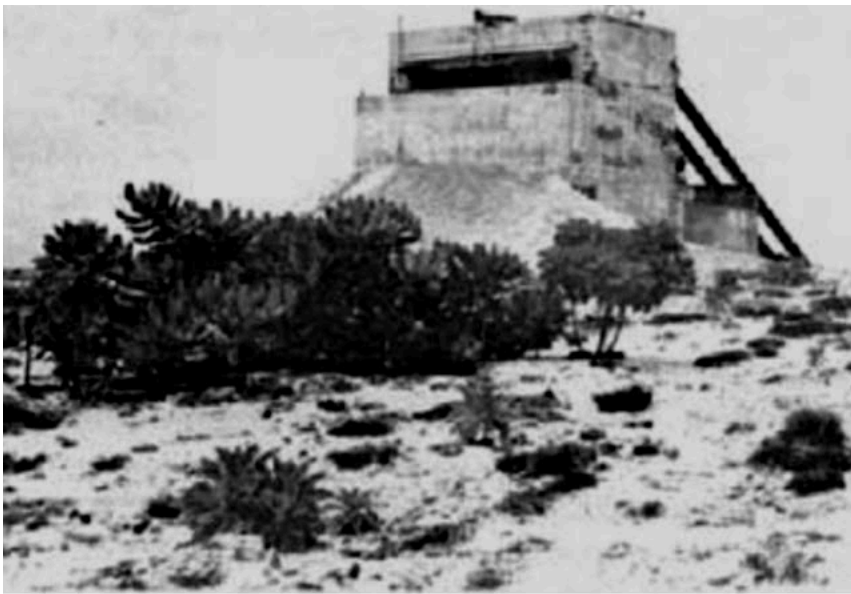
Figure 12.54. Sectional plan and section of underg

Above: the 100 psi peak overpressure surviving nuclear test-proved shelter in the 1957 edition of Glasstone's *Effects of Nuclear Weapons*.

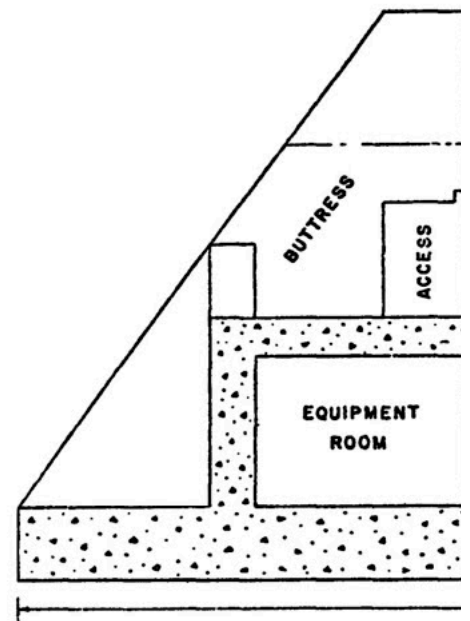
Shelter at ground zero, directly under 11 kt Fitzeau nuclear



Test fired on 14 September 1957. Shelter was re-entered
 outdoor (ground zero) dose rate was down to about 10
 the concrete shelter, which was protected by a steel d
 Shelter had 5 feet of earth cover, and was depressed 2
 shock wave. (W. G. Johnson, A Historical Evaluation of



Station 1341, Able Island (7500 ft from GZ) Front Elevation



Station 1341, Able Island, 7500 ft from GZ

14.8 megatons

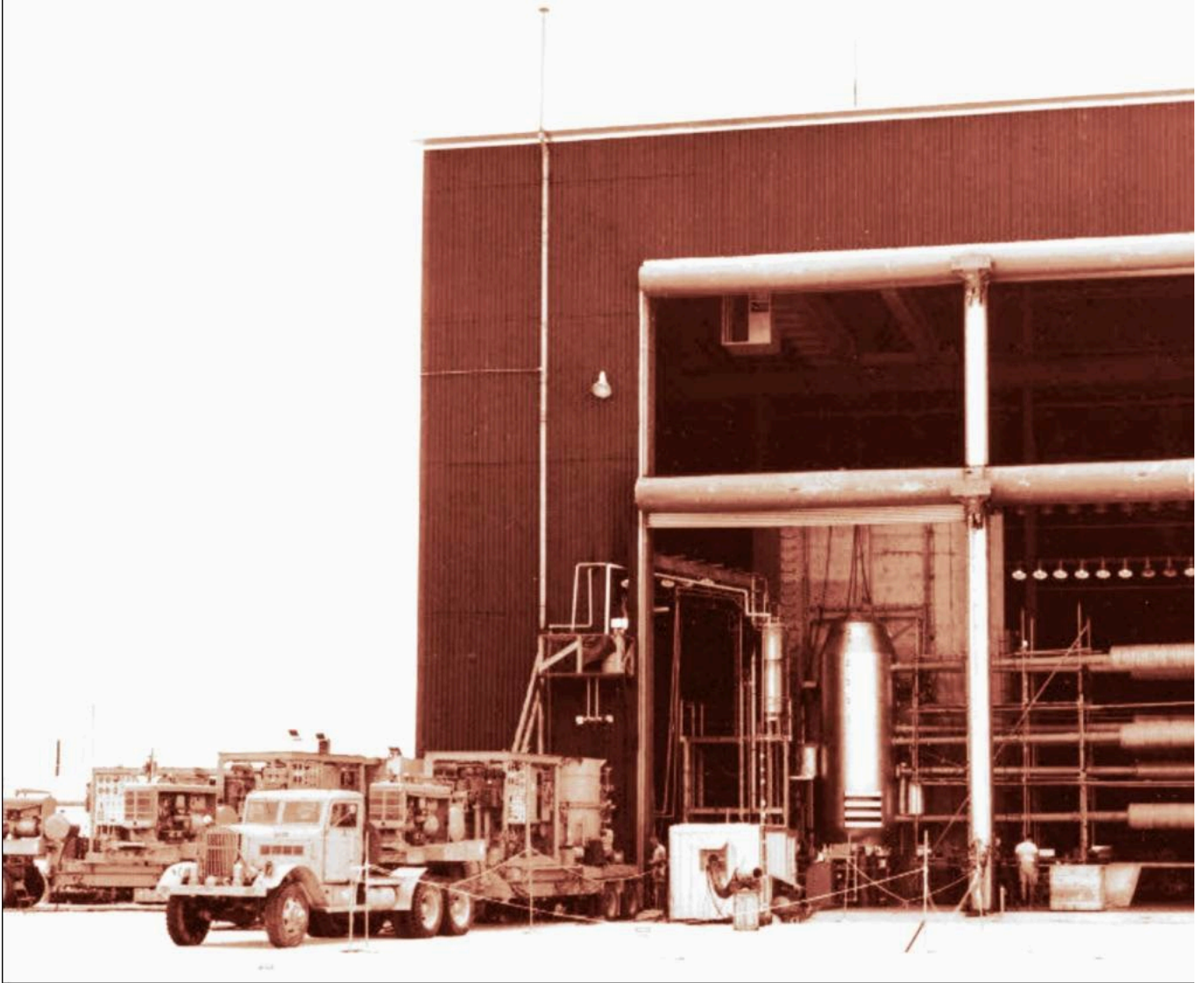
1 March 1954

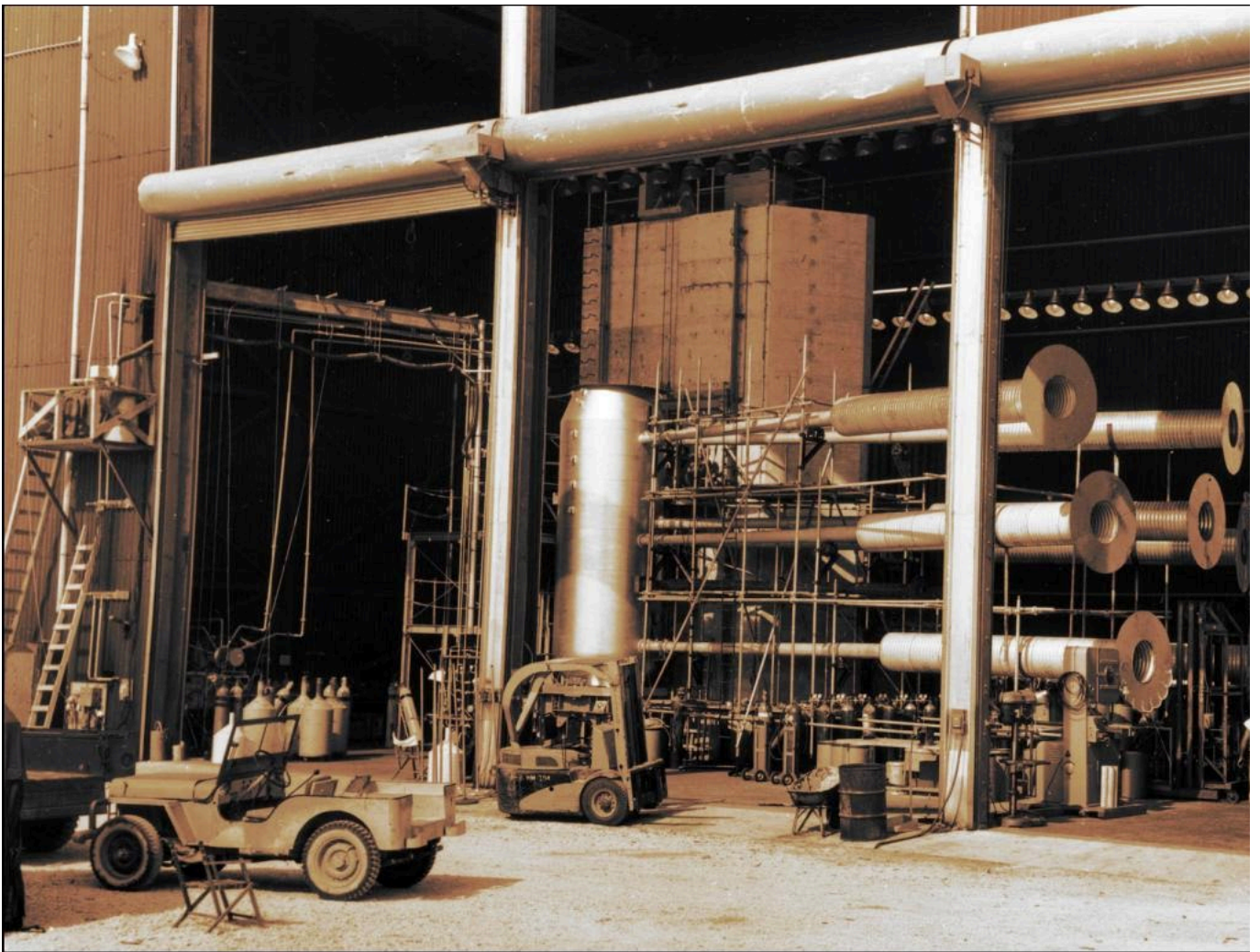
**Station 1341
a three-story
survived 7,500**



**10.4 MEGATON MIKE TEST: 2.29 km, Ru
Station 520 concrete blockhouse surviv**

10 Mt MIKE H-bomb, 1952







DAMAGE FROM AIR BLAST

Met ENW 57 structure 3.6 1500 ft GR Teapot MET
30psi op 170psi dynamic WT1128 PRECURSOR

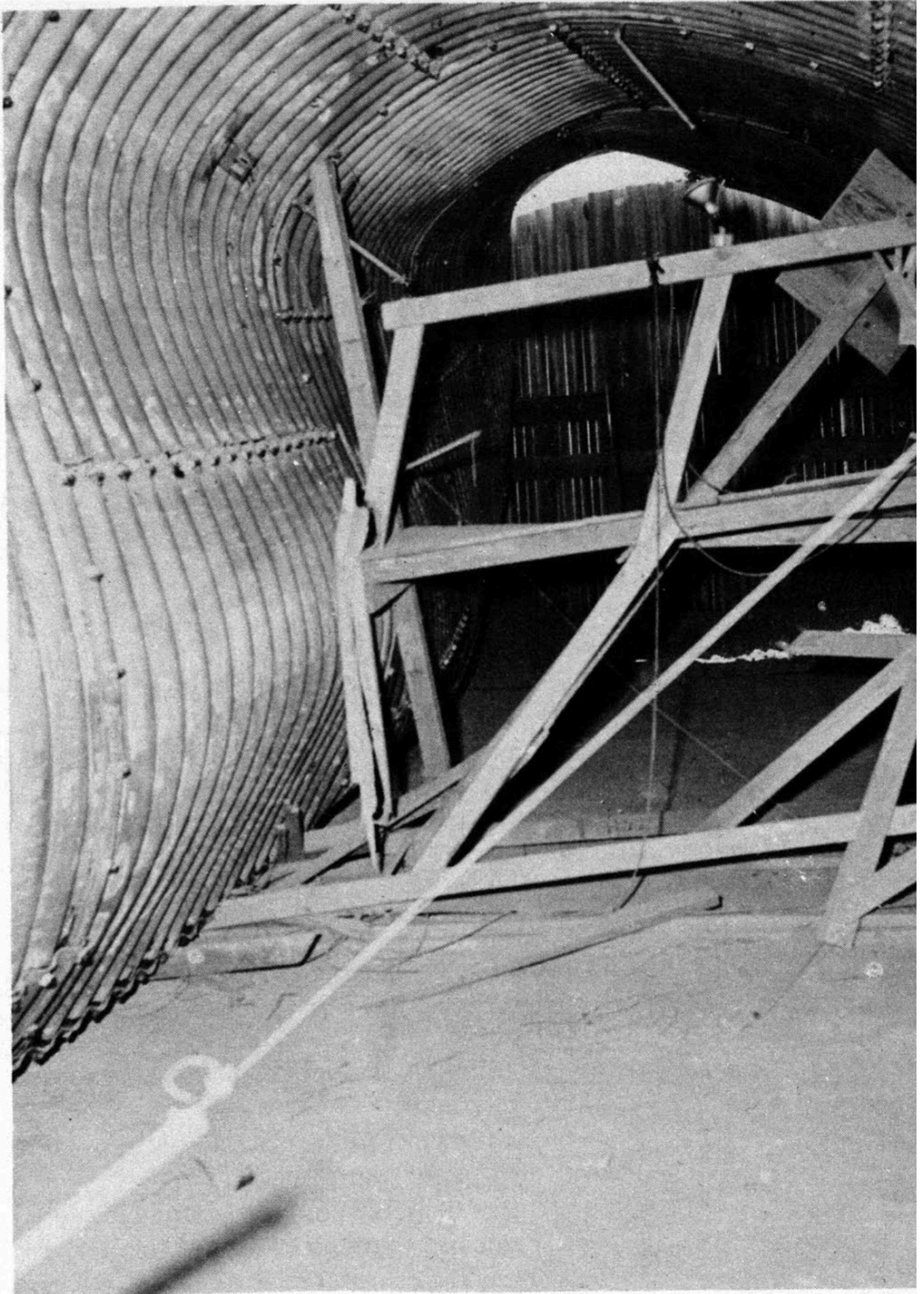


Figure 8-12 R-type damage to earth-covered 10-gage corrugated steel

2 COMMENTS



Fig. 16—Lean-to at 7500 ft before blast.

Fig. 14—Lean-to at 35

16.4-kt, 300-ft tower shot

No damage was caused to either shelter by the blast

12

AD A 0 7 4 6 2 4

WT-801

CONFIDENTIAL (declassified in 1963)

EFFECTS OF AN ATOMIC EXPLOSION
ON UNDERGROUND AND BASEMENT
OF HOME SHELTERS

Joseph B. Byrnes Oct

(b) Covered Trench Shelter at 1450 Ft from Ground Zero. See Fig. A.3 for details of shelter. Thirty-three pounds of sand was added to the lower part of the male mannequin in this shelter in the same manner as previously described. The total weight of the mannequin fully clothed, was 84 lb. Marks were made on the bench and roof slab of the shelter before blast to locate the position of the dummy.

The mannequin was not moved or damaged by the blast. No damage to the shelter was evident. The roof slab showed no cracks and had no permanent deflection at midspan.

Concrete slab roof with 3 ft earth cover

(at the 1955 29kt Apple-2 test, a similar basement lean-to shelter at 4700 ft reduced 180 r initial gamma outside to just 6.7 r: Table 2.1 on p35 of WT-1218, May

At 5:40 am,  Anonymous said...

ADA073524, LJ Vortman, "Evaluation of Various Types of Personnel Shelters Exposed to Nuclear Weapons"

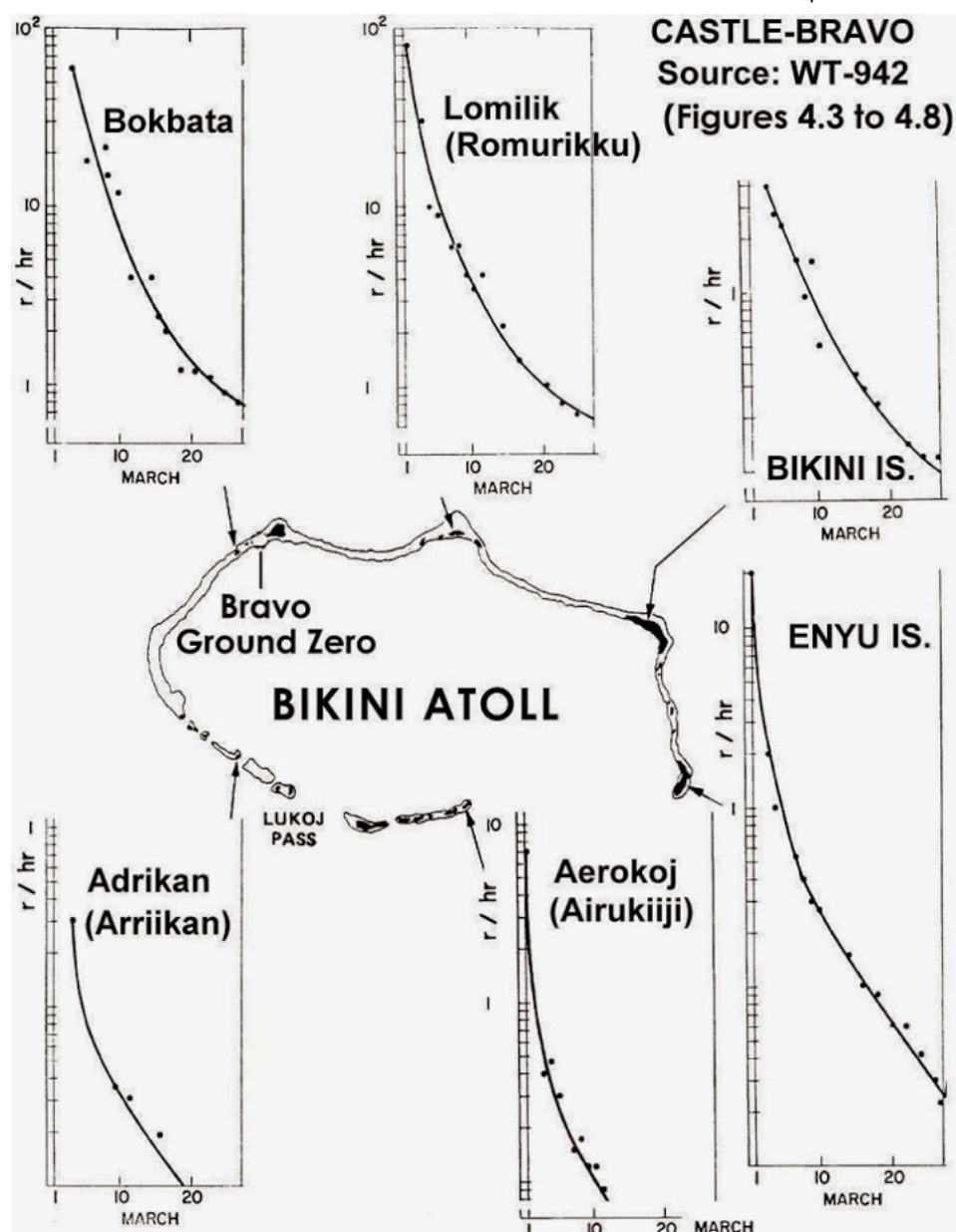
A SUMMARY OF UNDERGROUND AND EARTH-COVERED LOADING AND RESPONSE SYSTEMS SUBJECTED TO THE EFFECTS OF NUCLEAR WEAPONS DURING FULL-SCALE TEST OPERATIONS CONDUCTED 1951 - 1958, 31 August 1963, report DASA-1390, AD340311, previously Secret-FRD. This report lists all the nuclear weapons tests, the blueprints for the structures exposed at each, the distance and peak overpressure, etc., and the effects which resulted.

Since Bikini and Eniwetok atolls are relatively small, the higher yield tests repeatedly exposed instrument station structures left over from previous testing to further detonations, so that the effects of repeated blasts were ascertained. This is contrary to so much of the ignorance-based anti-civil defense propaganda which insists that nobody knows what repeated nuclear explosions will do to targets.

DAMAGE TO EXISTING EPG STRUCTURES, 17 October 1960, report WT-1631, AD355505, previously Secret-FRD, contains useful tables of the effects of repeated nuclear detonations on the testing structures at Bikini and Eniwetok atolls during the nuclear tests at those atolls, including the final tests there in 1958.

Wayne J. Christensen, Blast Effects on Miscellaneous Structures, Operation Castle, Project 3.5, July 1955, Secret - RD, WT-901.

What needs to be produced is a new summary of atmospheric nuclear tests, incorporating these detailed data on the effects of specific tests upon specific target structures.

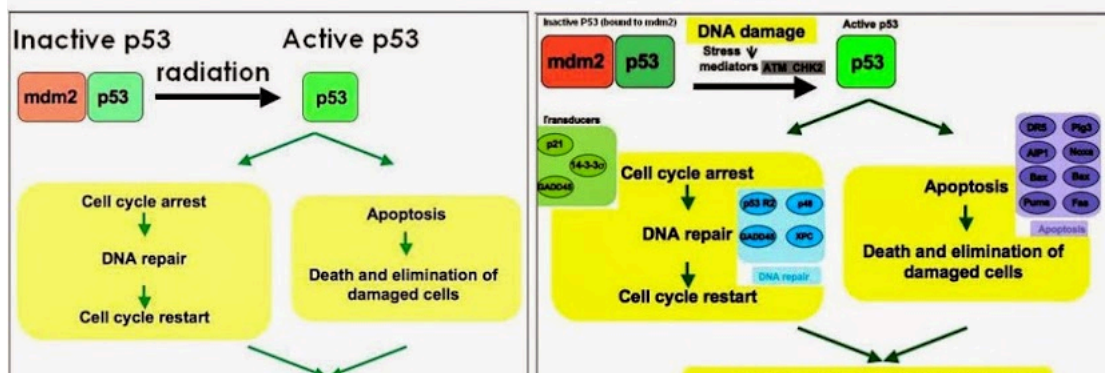


Preston, D. L., Pierce, D. A., Shimizu, Y., Cullings, H. M., Fujita, S., Funamoto, S. and Kodama, K., "Effect of Recent Changes in Atomic Bomb Survivor Dosimetry on Cancer Mortality Risk Estimates," *Radiat. Res.* v162, pp377-389 (2004).

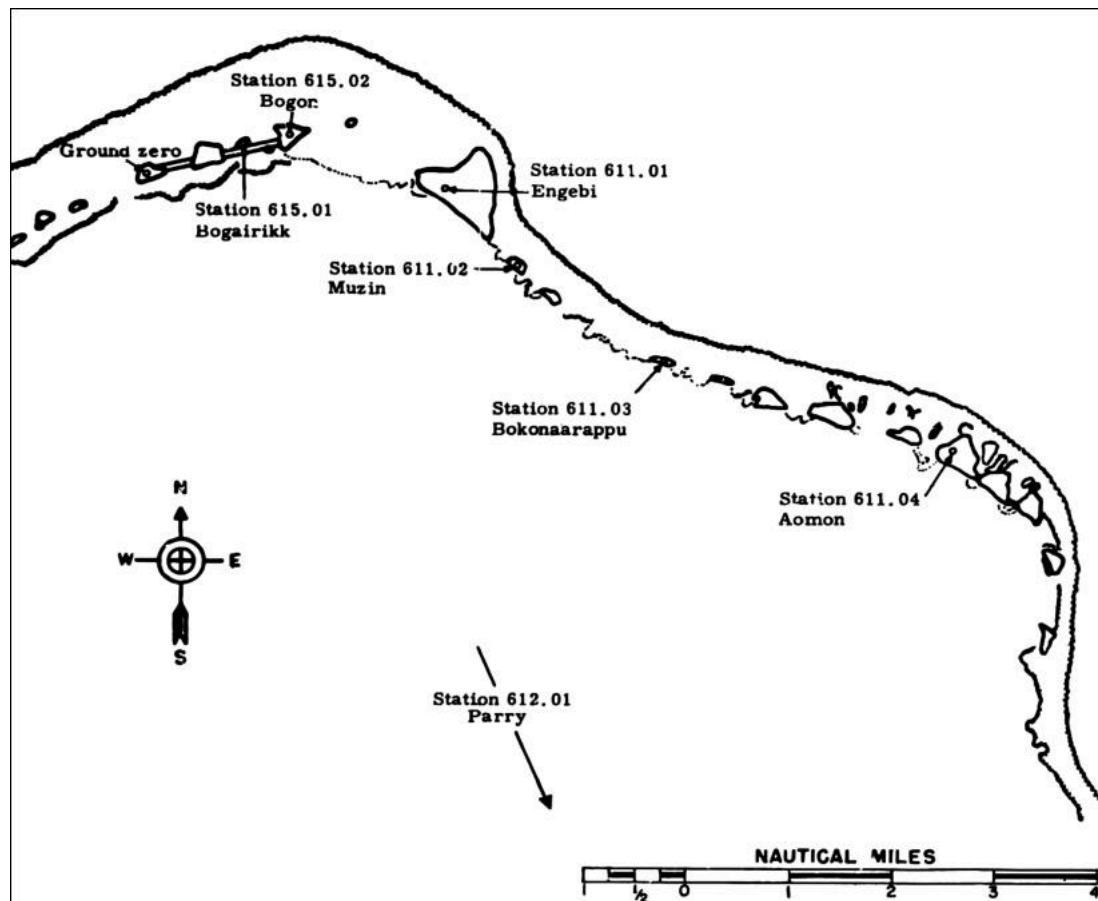
Dose range milli-sievert	Number in 1950	Cancer deaths (excl. leukaemia)		Leukaemia deaths	
		total rate	rate from radiation	total rate	rate from radiation
Less than 100	68467	11.2%	0.09%	0.2%	0.01%
100 to 200	5949	12.3%	0.7%	0.2%	-0.01%
200 to 1000	9806	13.2%	1.9%	0.6%	0.3%
More than 1000	1829	24.1%	8.1%	3.5%	2.4%
All	86611	11.7%	0.6%	0.3%	0.1%

Cancer deaths among 86611 Hiroshima and Nagasaki survivors, 1950-2000

The total radiation-related deaths from solid cancer and leukaemia were 480 and 93, respectively.



Actually it's Prevention of cancer or genetic defect by the H-bomb explosion. After reading some of your articles, you said



Above: in the 10.4 megaton Mike nuclear test on Elugelab Island, Eniwetok Atoll, 1952, the rats (species *Rattus exulans*) of Engebi survived the heat, blast, and fallout as explained by Neal O. Hines in his book *Proving ground: An account of the radiobiological studies in the Pacific, 1946-1961*, dramatically on pages 143, 151, 209-212, and 297:

Page 143: "On ... November 8 [7 days after Mike] ... At Engebi the group went ashore on an island ... that had been swept by the blast and by the succeeding surge of water. ... survey meters indicated radiation was at 2 to 2.5 R/hr [about 1,000 R/hr at 1 hour after detonation, allowing for $t^{-1.2}$ fallout decay] ...

Page 151: "The exposure of Engebi to the effects of the Mike shot made it seem impossible that rats had survived. The view was expressed in a subsequent summary by [Frank] Lowman, who said that there was 'little probability that rats had lived through the heat, the shock wave, the rush of water, and the nuclear radiations that Mike had inflicted on the island. Members of the rat colonies apparently did live through the holocaust, however, and the questions presented by this circumstance would intrigue the investigators for years."

Page 209: "Their nests, composed of loosely matted grass stems, usually are built in burrows 6-12 inches below the surface of the ground, but occasionally the tunnels extend to 18-24 inches below the surface, or nests are found immediately beneath boards, slabs of concrete, or protective rubble. ... In 1955 the rats of Engebi were living on a treeless plain ... they fed on the seeds of *Lepturus*, *Thuarea*, and *Fimbristylis*, and on the leaves of *Triumfetta* and *Sida*, all common grass plants."

In 1954, the rats that of Engebi surviving Mike were exposed to the 1.69 megaton Castle-Nectar test, which is discussed on page 212:

"After the Nectar detonation concentrations [of I-131] in the thyroid were at levels considered excessive ... within 9 weeks activity in the thyroid was so low that measurement was difficult. ... most of the radioactivity in muscle was due to the presence of cesium-137, and no strontium-89/90 was found in that tissue. ... In January, 1955, the bones of rats contained strontium 89/90 in amounts approximating the maximum permissible dose, but no bone tumors have been discovered and none was found in specimens collected later."

Page 297: "The survival of the rats in the face of repeated atomic bombardment had seemed in 1955 a circumstance approaching the phenomenal. Even more so was the continued health of the colonies ... The case was important because it seemed to bear so directly on one of the broadest of the unanswered questions of the nuclear age, the effect on warm-blooded, vertebrate animals of continued exposure to low-level irradiation."



"... All creatures are linked to each other ... in their dependence on limited environments that together form the whole of nature ..." (Page 3). (White-capped noddy tern nesting colony, Engebi Island, Eniwetok Atoll, photographed in 1965.)

Atoms, Nature, and Man
Man-made Radioactivity in the Environment

Neal O. Hines

Noddy tern at Engebi Island, Eniwetok Atoll, 1965.

**Average ^{137}Cs Levels (pCi g^{-1} Dry Weight) of
Soil Samples and Plant and Animal Tissues
Collected on Runit Islet (1967)***

	Distance from Cactus Crater, m				
	0	200	1030	1710	2460
Surface soil	34.4	10.8	2.4	3.7	0.5
<i>Scaevola</i> fruit	437.5	56.1	7.5	20.4	1.7
<i>Tournefortia</i> leaves	2174.0	76.8	49.0	30.4	2.0
Roof rat liver	2261.0	276.0	38.8	11.0	3.5
Roof rat kidney	5134.0	722.0	95.6	38.0	4.7

*Bastian, R. K., and W. B. Jackson, 1975, ^{137}Cs and ^{60}Co in a Terrestrial Community at Enewetak Atoll, *Radioecology and Energy Resources*, Special Publication, The Ecological Society of America, Fourth National Symposium on Radioecology, Oregon State University, pp. 314-320.

Above: the rapid fall in cesium-137 uptake by plants and animals with distance from the lip of the 1956 Redwing-Cactus nuclear surface burst crater in 1967 (twelve years later, in 1979 this particular crater was used as a convenient dump for contaminated soil and WWII munitions found during the Eniwetok Atoll cleanup campaign, and then it was simply sealed up with a concrete dome).

Vaporization myths

Nobody has ever been "vaporised" by thermal radiation from a nuclear explosion, e.g. in Hiroshima even at ground zero you're talking about 100 calories per square centimetre in the open. Useful information: heat of vaporization of water = 2257 J/g = 540 calories/gram. Density of water or skin (70% water) = 1 gram/cubic centimetre.

Therefore, 100 calories per square centimetre (ground zero Hiroshima) is only enough energy to vaporize a layer of water or skin 100/540 = 0.185 cm thick, or 1.85 mm thick.

In fact, even less will be vaporized because some heat is reflected by the skin, and some is absorbed by clothing. If clothing ignites, it can be extinguished easily by rolling it out. Remember, contrary to propaganda, thermally ignited clothing is easier to extinguish than petrol soaked clothing in peacetime car accident victims. The 1946 U.S. Strategic Bombing Survey report documents the fact that clothing ignition could be beaten out.

The main danger in cities is not from thermal radiation or fires, because modern city buildings absorb almost all of the thermal and much of the nuclear radiation. So the really widespread danger is flying glass and blast winds, which are dealt with by duck and cover on seeing the bright flash, which arrives prior to the blast wave.

posted by Nuclear Weapons Effects 10:42 am

actually an atomic bomb will never vaporized a person. Can you elaborate more about this claim? Do you believe that an atomic bomb can't vaporize an entire human body including all the bones, organs, etc.? From what I've learned from many sources an atomic bomb explosion could vaporized a large number of people and leaving only a bits of burned charcoal which are actually the remains of the victims, sometimes leaving only gases and dusts.

At 2:08 pm, [@nige](#) said...

No, Elugelab wasn't "vaporised". If you touch coral, it's fragile and breaks up very easily into coral sand. Hence the big crater, which doesn't happen in ordinary soil:

See the latest post on this blog for a discussion of cratering exaggerations: [Easy protection against the exaggerated city effects of nuclear weapons, and easy protection against nerve gas, http://glasstone.blogspot.co.uk/2013/08/secret-british-wwii-data-dr-d-g.html](http://glasstone.blogspot.co.uk/2013/08/secret-british-wwii-data-dr-d-g.html)

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Glasstone's fake nuclear weapon data for unobstructed terrain debunked for cities! Realistic effects and credible nuclear weapon capabilities for deterring or stopping aggressive invasions and attacks which could escalate into major conventional or nuclear wars. Credible nuclear deterrence of invasions and conventional wars reduce the risk of large conventional and nuclear wars occurring through escalation of invasions such as the invasion of Belgium in 1914 and the invasion of Poland in 1939, of surprise attacks like those against France in 1940 and of Russia and Pearl Harbor in 1941, Afghanistan in 1979, Kuwait in 1990, or Crimea in 2014. **Contrary to irrational, pseudo-scientific propaganda, the number of nuclear weapons is smaller than the millions of conventional weapons used in large wars and the correct scaling shows that the overall effects are similar, not massively different as often claimed for political propaganda by enemies of peace. Furthermore, the greater time delay of effects from nuclear weapons over the damaged area increases the efficiency of cheap civil defence countermeasures, as compared to conventional weapons. We need credible effects of nuclear weapons for real world peace: peace through tested, proved and practical declassified deterrence and countermeasures against collateral damage. Credible deterrence through simple, effective protection against concentrated and dispersed invasions and aerial attacks. Discussions of the facts as opposed to inaccurate, misleading lies of the "disarm or be annihilated" political dogma variety. Hiroshima and Nagasaki anti-nuclear propaganda debunked by the hard facts. Walls not wars. Walls bring people together by stopping divisive terrorists. In conclusion, credible nuclear deterrence of conventional war offers a beautiful opportunity to create a peaceful world, free from fear peddling, ranting dictators. The only oppositions you will meet will come from authoritarian obsessed fear peddling myth makers. If they can't tell the truth and face the facts, why listen to them? Please see our post on the need to *deter not only direct threats from nuclear attacks but also conventional wars and invasions* that can *escalate* into nuclear wars (as proved by the use of nuclear weapons in WWII, for example, after they were developed during the war itself and did not trigger or provoke the war), linked [here](#), [here](#), [here](#), and [here](#), [here](#), [here](#), and the true scaling law equivalence between a few thousand nuclear weapons and the several million tons of small conventional weapons in a non-nuclear world war as proved by our post [summarising key points in Herman Kahn's much-abused call for credible deterrence, On Thermonuclear War](#), linked [here](#). Peace comes through tested, proved and practical declassified countermeasures against the effects of nuclear weapons, chemical weapons and conventional weapons. Credible deterrence to end invasions and wars comes through simple, effective protection against invasions like low yield tactical weapons and walls, and civil defence against collateral damage. Peace comes through discussions of the facts as opposed to inaccurate, misleading lies of the "disarm or be annihilated" political dogma variety, which are designed to exploit fear to close down criticisms of errors in mainstream orthodoxy. In particular, please see the [post linked here on EMP results from an actual Russian 300 kt test at 290 km altitude over unwarned civilian infrastructure in Kazakhstan on 22 October 1962](#), which caused no injuries or deaths whatsoever (contrary to all of Jeremy Corbyn and CND style lying propaganda that any use of nuclear weapons on civilians would automatically kill millions), but shut down the**

communications and power supply lines! This is not secret, but does not make newspaper headlines to debunk CND style dogmas on the alleged incredibility of nuclear deterrence.

- Hiroshima's air raid shelters were unoccupied because Japanese Army officers were having breakfast when B29s were detected far away, says Yoshie Oka, the operator of the Hiroshima air raid sirens on 6 August 1945...

- In a sample of 1,881 burns cases in Hiroshima, only 17 (or 0.9 percent) were due to ignited clothing and 15 (or 0.7%) were due to the firestorm flames...

- Dr Harold L. Brode's new book, *Nuclear Weapons in ...*

- 800 war migrants drowned on 22 April by EU policy:...

- Photographed fireball shielding by cloud cover in ...

- Nuclear weapons effects "firestorm" and "nuclear w...

- Proved 97.5% survival in completely demolished houses ...

How to achieve peace through tested, proved and practical declassified countermeasures against the effects of nuclear weapons, chemical weapons and conventional weapons. Credible deterrence through simple, effective protection against invasions and collateral damage. Discussions of the facts as opposed to inaccurate, misleading lies of the "disarm or be annihilated" political dogma variety. Hiroshima and Nagasaki anti-nuclear propaganda debunked by the hard facts. Walls not wars. Walls bring people together by stopping attacks by "divide and rule" style divisive terrorists, contrary to simplistic Vatican propaganda.

"There has never been a war yet which, if the facts had been put calmly before the ordinary folk, could not have been prevented." - British Foreign Secretary Ernest Bevin, House of Commons Debate on Foreign Affairs, Hansard, 23 November 1945, column 786 (unfortunately secret Cabinet committees called "democracy" for propaganda purposes have not been quite so successful in preventing war). Protection is needed against collateral civilian damage and contamination in conventional, chemical and nuclear attack, with credible low yield clean nuclear deterrence against conventional warfare which, in reality (not science fiction) costs far more lives. Anti scientific media, who promulgate and exploit terrorism for profit, censor (1) vital, effective civil defense knowledge and (2) effective, safe, low yield air burst clean weapons like the Mk54 and W79 which deter conventional warfare and escalation, allowing arms negotiations from a position of strength. This helped end the Cold War in the 1980s. Opposing civil defense and nuclear weapons that really deter conventional war, is complacent and dangerous.

War and coercion dangers have not stemmed from those who openly attack mainstream mistakes, but from those who camouflage themselves as freedom fighters to ban such free criticism itself, by making the key facts seem taboo, without even a proper debate, let alone financing research into unfashionable alternatives. Research and education in non-mainstream alternatives is needed before an unprejudiced debate, to establish all the basic facts for a real debate. "Wisdom itself cannot flourish, nor even truth be determined, without the give and take of debate and criticism." - Robert Oppenheimer (quotation from the H-bomb TV debate hosted by Eleanor Roosevelt, 12 February 1950).

"Apologies for freedom? I can't handle this! ... Deal from strength or get crushed every time ... Freedom demands liberty everywhere. I'm thinking, you see, it's not so easy. But we have to stand up tall and answer freedom's call!" - Freedom Kids

CONVENTIONAL WARS HAVE KILLED TENS OF MILLIONS OF PEOPLE, NUCLEAR WEAPONS CAN RAPIDLY DETER THIS REAL THREAT TO PEACE WITH MINIMAL CASUALTIES. 'During the critical period 8-15 February [1968], the U.S. command realized [that conventional] bombing was not sufficiently effective. ... The air campaign dropped over 110,000 tons of bombs and napalm on the area around Khe Sanh during the 77-day siege ... the most heavily bombed target in the history of conventional warfare.' - W. C. Yengst, S. J. Lukasik, and M. A. Jensen, *Nuclear Weapons that went to War*, SAID report DSWA-TR-97-25, September 1998 (quoted in the 2015 book by the secret *Capabilities of Nuclear Weapons* editor, Dr Harold L. Brode, *Nuclear Weapons in the Cold War*, page 287). [British Nuclear Test Civil Defence Research](#)



CHANGE 1

Field Manual No 101-31-1

NUCLEAR WEAPONS EMPLOYMENT DOCTRINE AND PROCEDURES

Radius of vulnerability (emergency risk criterion: 5% combat ineffective)

Figure 54. Radii of Vulnerability.

CATEGORY	PERSONNEL (LL) IN— (Based on Governing Effect)				
	Open	Open Foxholes	APCs	Tanks	Earth Shelter
Radii listed are distances at which a 5 percent incidence of effect occurs. HOB used is $60W^{1/3}$ meters.					
Yield (KT)					
(Distances are in meters)					
0.1	700	600	600	500	300
1	1200	900	900	800	500
10	3200	1300	1300	1250	900
20	4000	1500	1450	1400	1000
100	8000	1900	1800	1800	1400
200	12000	2000	1900	1900	1500
300	14000	2100	1950	1950	1600

**Protective factor = ratio
area of effect in the open
area of effect for shelter**

**Example: for 300 kt, the protective
factor of open foxholes is equal to
 $(14,000)^2 / (2,100)^2 = 44$.**

Open	Open Foxholes	APCs	Tanks	Earth Shelter
1	1.36	1.36	1.96	5
1	1.78	1.78	2.25	5
1	6.06	6.06	6.55	12
1	7.11	7.61	8.16	16
1	17.7	19.8	19.8	32
1	36.0	39.9	39.9	64
1	44.4	51.5	51.5	76

Calculation of the injury-averting protective factors by simple open foxholes and earth shelter function of weapon yield. Most countermeasures are relatively ineffective against tactical weapons (due to the predominating neutron radiation effect at 0.1 kt yield), but are extremely effective against strategic nuclear weapons with yields of 100, 200 and 300 kt (protective factors of

The definition of protective factor used here is the factor by which casualties numbers are

Richard P. Feynman, 'This Unscientific Age', in *The Meaning of It All*, Penguin Books, London, 1998, pages 106-9:

'Now, I say if a man is absolutely honest and wants to protect the populace from the effects of radioactivity, which is what our scientific friends often say they are trying to do, then he should work on the biggest number, not on the smallest number, and he should try to point out that the [natural cosmic] radioactivity which is absorbed by living in the city of Denver is so much more serious [than the smaller doses from nuclear explosions] ... that all the people of Denver ought to move to lower altitudes.'

"If a man reads or hears a criticism of anything in which he has an interest, watch ... if he shows concern with any question except 'is it true?' he thereby reveals that his own attitude is unscientific. Likewise if ... he judges an idea not on its merits but with reference to the author of it; if he criticizes it as 'heresy'; if he argues that authority must be right because it is authority ... The path of truth is paved with critical doubt, and lighted by the spirit of objective enquiry... the majority of people have resented what seems in retrospect to have been purely matter of fact ... nothing has aided the persistence of falsehood, and the evils resulting from it, more than the unwillingness of good people to admit the truth ... the tendency continues to be shocked by natural comment, and to hold certain things too 'sacred' to think about. ... How rarely does one meet anyone whose first reaction to anything is to ask: 'is it true?' Yet, unless that is a man's natural reaction, it shows that truth is not uppermost in his mind, and unless it is, true progress is unlikely."

- Sir Basil Henry Liddell Hart, *Why Don't We Learn from History?*, PEN Books, 1944; revised edition, Allen and Unwin, 1972.

Civil defense countermeasures, to be taken seriously by the population, require the publication of solid facts with the scientific evidence to support those facts against political propaganda to the contrary. Secrecy over the effects of nuclear weapons tests does not hinder plutonium and missile production by rogue states, but it does hinder civil defense countermeasures, by permitting lying political propaganda to go unopposed (see linked post, here).

Terrorists successfully prey on the vulnerable. The political spreading of lies concerning threats and the alleged 'impossibility' of all countermeasures, terrorizing the population in order to 'justify' supposedly pro-peace disarmament policies in the 1920s-1930s, resulted in the secret rearmament of fascist states which were terrorizing the Jews and others, eventually leading to World War II.

Political exaggerations about nuclear weapons effects today:

(1) encourage terrorist states and other groups to secretly invest in such weapons to use either for political intimidation or for future use against countries which have no countermeasures, and

(2) falsely dismiss, in the eyes of the media and the public, cheap relatively effective countermeasures like civil defense and ABM.

Therefore, doom-mongering media lies *make us vulnerable to the proliferation threat* today in two ways, just as they led to both world wars:

(1) Exaggerations of offensive technology and a down-playing of simple countermeasures such as trenches, encouraged belligerent states to start World War I in the false belief that modern technology implied overwhelming firepower which would terminate the war quickly on the basis of offensive preparedness: if the facts about simple trench countermeasures against shelling and machine guns during the American Civil War had been properly understood, it would have been recognised by Germany that a long war based on munitions production and logistics would be necessary, and war would have been seen to be likely to lead to German defeat against countries with larger overseas allies and colonies that could supply munitions and the other resources required to win a long war.

(2) Exaggerations of aerial bombardment technology after World War I led to disarmament 'supported by' false claims that it was impossible to have any defense against a perceived threat of instant annihilation from thousands of aircraft carrying gas and incendiary bombs, encouraging fascists to secretly rearm in order to successfully take advantage of the fear and vulnerability caused by this lying political disarmament propaganda.

Contrived dismissal of civil defense by Marxist "Cambridge Scientists Anti-War Group" bigots: (a) appeased war-mongering enemies, and (b) maximised war mortality rates. Idealism kills. Super effective, fully proof-tested, cheap civil defense makes nuclear deterrence credible to stop conventional war devastation by avoiding collateral damage, tit-for-tat retaliation and escalation.

Historically, it has been proved that having weapons is not enough to guarantee a reasonable measure of safety from terrorism and rogue states; countermeasures are also needed, both to make any deterrent credible and to negate or at least mitigate the effects of a terrorist attack. Some people who wear seatbelts die in car crashes; some people who are taken to hospital in ambulances, even in peace-time, die. Sometimes, lifebelts and lifeboats cannot save lives at sea. This lack of a 100% success rate in saving lives doesn't disprove the value of everyday precautions or of hospitals and medicine. Hospitals don't lull motorists into a false sense of security, causing them to drive faster and cause more accidents. Like-minded 'arguments' against ABM and civil defense are similarly vacuous.

'As long as the threat from Iran persists, we will go forward with a missile system that is cost-effective and proven. If the Iranian threat is eliminated, we will have a stronger basis for security, and the driving force for missile-defense construction in Europe will be removed.'

- President Obama, Prague Castle, Czech Republic, 4 April 2009.

Before 9/11, Caspar Weinberger was quizzed by skeptical critics on the BBC News program *Talking Point*, Friday, May 4, 2001: *Caspar Weinberger quizzed on new US Star Wars ABM plans:*

'The [ABM] treaty was in 1972 ... The theory ... supporting the ABM treaty [which prohibits ABM, thus making nations vulnerable to terrorism] ... that it will prevent an arms race ... is perfect nonsense because we have had an arms race all the time we have had the ABM treaty, and we have seen the greatest increase in proliferation of nuclear weapons that we have ever had. ... So the ABM treaty preventing an arms race is total nonsense. ...

'You have to understand that without any defences whatever you are very vulnerable. It is like saying we don't like chemical warfare - we don't like gas attacks - so we are going to give up and promise not to have any defences ever against them and that of course would mean then we are perfectly safe. ...

'The Patriot was not a failure in the Gulf War - the Patriot was one of the things which defeated the Scud and in effect helped us win the Gulf War. One or two of the shots went astray but that is true of every weapon system that has ever been invented. ...

'The fact that a missile defence system wouldn't necessarily block a suitcase bomb is certainly not an argument for not proceeding with a missile defence when a missile that hits can wipe out hundreds of thousands of lives in a second. ...

'The curious thing about it is that missile defence is not an offensive weapon system - missile defence cannot kill anybody. Missile defence can help preserve and protect your people and our allies, and the idea that you are somehow endangering people by having a defence strikes me almost as absurd as saying you endanger people by having a gas mask in a gas attack. ...

'President Bush said that we were going ahead with the defensive system but we would make sure that nobody felt we had offensive intentions because we would accompany it by a unilateral reduction of our nuclear arsenal. It seems to me to be a rather clear statement that proceeding with the missile defence system would mean fewer arms of this kind.

'You have had your arms race all the time that the ABM treaty was in effect and now you have an enormous accumulation and increase of nuclear weapons and that was your arms race promoted by the ABM treaty. Now if you abolish the ABM treaty you are not going to get another arms race - you have got the arms already there - and if you accompany the missile defence construction with the unilateral reduction of our own nuclear arsenal then it seems to me you are finally getting some kind of inducement to reduce these weapons.'

Before the ABM system is in place, and afterwards if ABM fails to be 100% effective in an attack, or is bypassed by terrorists using a bomb in a suitcase or in a ship, civil defense is required and can be effective at saving lives:

'Paradoxically, the more damaging the effect, that is the farther out its lethality stretches, the more can be done about it, because in the last fall of its power it covers vast areas, where small mitigations will save very large numbers of people.'

- Peter Laurie, *Beneath the City Streets: A Private Inquiry into the Nuclear Preoccupations of Government*, Penguin, 1974.

'The purpose of a book is to save people [the] time and effort of digging things out for themselves. ... we have tried to leave the reader with something tangible - what a certain number of calories, roentgens, etc., means in terms of an effect on the human being. ... we must think of the people we are writing for.'

- Dr Samuel Glasstone, DSc, letter dated 1 February 1957 to Colonel Dent L. Lay, Chief, Weapons Effects Division, U.S. Armed Forces Special Weapons Project, Washington, D.C., pages 2 and 4, concerning the preparation of *The Effects of Nuclear Weapons*.



Glasstone and Dolan stated in *The Effects of Nuclear Weapons* (1977), Table 12.17 on page 546, that the median distance in Hiroshima for survival after 20 days was 0.12 miles for people in concrete buildings and 1.3 miles for people standing outdoors. Therefore the median distances for survival in modern city buildings and in the open differed by a factor of 11 for Hiroshima; the difference in areas was thus a factor of 11² or about 120. Hence, taking cover in modern city buildings reduces the casualty rates and the risks of being killed by a factor of 120 for Hiroshima conditions, contrary to popular media presented political propaganda that civil defence is hopeless. This would reduce 120,000 casualties to 1,000 casualties.

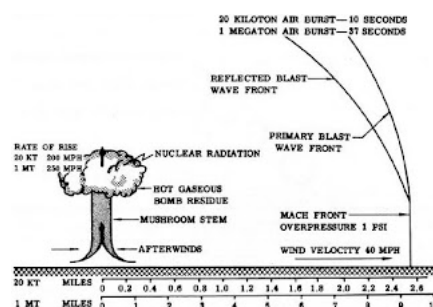
From Dr Glasstone's *Effects of Nuclear Weapons* (1962/64 ed., page 631): 'At distances between 0.3 and 0.4 mile from ground zero in Hiroshima the average survival rate, for at least 20 days after the nuclear explosion, was less than 20 percent. Yet in two reinforced concrete office buildings, at these distances, almost 90 percent of the nearly 800 occupants survived more than 20 days, although some died later of radiation injury. Furthermore, of approximately 3,000 school students who were in the open and unshielded within a mile of ground zero at Hiroshima, about 90 percent were dead or missing after the explosion. But of nearly 5,000 students in the same zone who were shielded in one way or another, only 26 percent were fatalities. ... survival in Hiroshima was possible in buildings at such distances that the overpressure in the open was 15 to 20 pounds per square inch. ... it is evident ... that the area over which protection could be effective in saving lives is roughly eight to ten times as great as that in which the chances of survival are small.'

Lord Mayhew, House of Lords debate on Civil Defence (General Local Authority Functions) Regulations, Hansard, vol. 444, cc. 523-49, 1 November 1983: '... if there had been effective civil defence at Hiroshima probably thousands of lives would have been saved and much human suffering would have been avoided. There is no question about it. ...'

Since the 1977 update by [Glasstone and Dolan](#), [extensive new updates to EM-1 for a further revised edition](#) of *The Effects of Nuclear Weapons* have not actually been published with unlimited public distribution, due to President Carter's 1979 executive order which transferred responsibility for civil defense from the jurisdiction of the U.S. Department of Defense's Defense Civil Preparedness Agency to the new agency (which is not an Agency of the U.S. Department of Defense, and is not concerned with the analysis of nuclear weapons test effects data), the Federal Emergency Management Agency. However, the [February 1997 U.S. Department of Defense's Defense Special Weapons Agency 0602715H RDT&E Budget Item Justification Sheet \(R-2 Exhibit\)](#) states that a revision of Glasstone and Dolan's unclassified *Effects of Nuclear Weapons* was budgeted for 1997-9:

"FY 1997 Plans: ... Provide text to update Glasstone's book, *The Effects of Nuclear Weapons*, the standard reference for nuclear weapons effects. ... Update the unclassified textbook entitled, *The Effects of Nuclear Weapons*. ... Continue revision of Glasstone's book, *The Effects of Nuclear Weapons*, the standard reference for nuclear weapons effects. ... FY1999 Plans ... Disseminate updated *The Effects of Nuclear Weapons*."

The new publications are either classified or unclassified with limited distribution restrictions (e.g., [Bridgman's Introduction to the Physics of Nuclear Weapons Effects](#), which includes several chapters on nuclear weapons design to enable initial radiation outputs to be calculated precisely) which prevents up-to-date basic nuclear effects information to justify civil defense against the latest nuclear threats from being widely disseminated; the books are printed for use only by government agencies. The problem with this approach is that widespread public understanding of the best information for civil defense countermeasures is prevented.



'It is true that the Soviets have tested nuclear weapons of a yield higher than that which we thought necessary, but the 100-megaton bomb of which they spoke two years ago does not and will not change the balance of strategic power. The United States has chosen, deliberately, to concentrate on more mobile and more efficient weapons, with lower but entirely sufficient yield ...' - President John F. Kennedy in his television broadcast to the American public, 26 July 1963.

'During World War II many large cities in England, Germany, and Japan were subjected to terrific attacks by high-explosive and incendiary bombs. Yet, when proper steps had been taken for the protection of the civilian population and for the restoration of services after the bombing, there was little, if any, evidence of panic. It is the purpose of this book to state the facts concerning the atomic bomb, and to make an objective, scientific analysis of these facts. It is hoped that as a result, although it may not be feasible completely to allay fear, it will at least be possible to avoid panic.'

- Dr George Gamow (the big bang cosmologist), Dr Samuel Glasstone, DSc (Executive Editor of the book), and Professor Joseph O. Hirschfelder, *The Effects of Atomic Weapons*, Chapter 1, p. 1, Paragraph 1.3, U.S. Department of Defense, September 1950.

'The consequences of a multiweapon nuclear attack would certainly be grave ... Nevertheless, recovery should be possible if plans exist and are carried out to restore social order and to mitigate the economic disruption.'

- Philip J. Dolan, editor of *Nuclear Weapons Employment* FM 101-31 (1963), *Capabilities of Nuclear Weapons* DNA-EM-1 (1972), and *The Effects of Nuclear Weapons* (1977), Stanford Research Institute, Appendix A of the U.S. National Council on Radiological protection (NCRP) symposium *The Control of Exposure to the Public of Ionising Radiation in the Event of Accident or Attack*, 1981.

'Suppose the bomb dropped on Hiroshima had been 1,000 times as powerful ... It could not have killed 1,000 times as many people, but at most the entire population of Hiroshima ... [regarding the hype about various nuclear "overkill" exaggerations] there is enough water in the oceans to drown everyone ten times.'

- Professor Brian Martin, PhD (physics), 'The global health effects of nuclear war', *Current Affairs Bulletin*, Vol. 59, No. 7, December 1982, pp. 14-26.

In 1996, half a century after the nuclear detonations, data on cancers from the Hiroshima and Nagasaki survivors was published by D. A. Pierce et al. of the Radiation Effects Research Foundation, RERF (*Radiation Research* vol. 146 pp. 1-27; *Science* vol. 272, pp. 632-3) for 86,572 survivors, of whom 60% had received bomb doses of over 5 mSv (or 500 millirem in old units) suffering 4,741 cancers of which only 420 were due to radiation, consisting of 85 leukemias and 335 solid cancers.

'Today we have a population of 2,383 [radium dial painter] cases for whom we have reliable body content measurements. . . . All 64 bone sarcoma [cancer] cases occurred in the 264 cases with more than 10 Gy [1,000 rads], while no sarcomas appeared in the 2,119 radium cases with less than

10 Gy.'

- Dr Robert Rowland, Director of the Center for Human Radiobiology, *Bone Sarcoma in Humans Induced by Radium: A Threshold Response?*, Proceedings of the 27th Annual Meeting, European Society for Radiation Biology, Radioprotection colloquies, Vol. 32CI (1997), pp. 331-8.

Zbigniew Jaworowski, 'Radiation Risk and Ethics: Health Hazards, Prevention Costs, and Radiophobia', *Physics Today*, April 2000, pp. 89-90:

'... it is important to note that, given the effects of a few seconds of irradiation at Hiroshima and Nagasaki in 1945, a threshold near 200 mSv may be expected for leukemia and some solid tumors. [Sources: UNSCEAR, *Sources and Effects of Ionizing Radiation*, New York, 1994; W. F. Heidenreich, et al., *Radiat. Environ. Biophys.*, vol. 36 (1999), p. 205; and B. L. Cohen, *Radiat. Res.*, vol. 149 (1998), p. 525.] For a protracted lifetime natural exposure, a threshold may be set at a level of several thousand millisieverts for malignancies, of 10 grays for radium-226 in bones, and probably about 1.5-2.0 Gy for lung cancer after x-ray and gamma irradiation. [Sources: G. Jaikrishan, et al., *Radiation Research*, vol. 152 (1999), p. S149 (for natural exposure); R. D. Evans, *Health Physics*, vol. 27 (1974), p. 497 (for radium-226); H. H. Rossi and M. Zaider, *Radiat. Environ. Biophys.*, vol. 36 (1997), p. 85 (for radiogenic lung cancer).] The hormetic effects, such as a decreased cancer incidence at low doses and increased longevity, may be used as a guide for estimating practical thresholds and for setting standards. ...

'Though about a hundred of the million daily spontaneous DNA damages per cell remain unrepaired or misrepaired, apoptosis, differentiation, necrosis, cell cycle regulation, intercellular interactions, and the immune system remove about 99% of the altered cells. [Source: R. D. Stewart, *Radiation Research*, vol. 152 (1999), p. 101.] ...

'[Due to the Chernobyl nuclear accident in 1986] as of 1998 (according to UNSCEAR), a total of 1,791 thyroid cancers in children had been registered. About 93% of the youngsters have a prospect of full recovery. [Source: C. R. Moir and R. L. Telander, *Seminars in Pediatric Surgery*, vol. 3 (1994), p. 182.] ... The highest average thyroid doses in children (177 mGy) were accumulated in the Gomel region of Belarus. The highest incidence of thyroid cancer (17.9 cases per 100,000 children) occurred there in 1995, which means that the rate had increased by a factor of about 25 since 1987.

'This rate increase was probably a result of improved screening [not radiation!]. Even then, the incidence rate for occult thyroid cancers was still a thousand times lower than it was for occult thyroid cancers in nonexposed populations (in the US, for example, the rate is 13,000 per 100,000 persons, and in Finland it is 35,600 per 100,000 persons). Thus, given the prospect of improved diagnostics, there is an enormous potential for detecting yet more [fictitious] "excess" thyroid cancers. In a study in the US that was performed during the period of active screening in 1974-79, it was determined that the incidence rate of malignant and other thyroid nodules was greater by 21-fold than it had been in the pre-1974 period. [Source: Z. Jaworowski, *21st Century Science and Technology*, vol. 11 (1998), issue 1, p. 14.]'

One hour of American anti communist music



'Professor [Edward Lewis](#) used data from four independent populations exposed to radiation to demonstrate that the incidence of leukemia was linearly related to the accumulated dose of radiation. ... Outspoken scientists, including Linus Pauling, used [Lewis's](#) risk estimate to inform the public about the danger of nuclear fallout by estimating the number of leukemia deaths that would be caused by the test detonations. In May of 1957 [Lewis's](#) analysis of the radiation-induced human leukemia data was published as a lead article in Science magazine. In June he presented it before the Joint Committee on Atomic Energy of the US Congress.' - Abstract of thesis by Jennifer Caron, *Edward Lewis and Radioactive Fallout: the Impact of Caltech Biologists Over Nuclear Weapons Testing in the 1950s and 60s*, Caltech, January 2003.

Dr John F. Loutit of the Medical Research Council, Harwell, England, in 1962 wrote a book called Irradiation of Mice and Men (University of Chicago Press, Chicago and London), discrediting the pseudo-science from geneticist [Edward Lewis](#) on pages 61, and 78-79:

'... Mole [R. H. Mole, *Brit. J. Radiol.*, v32, p497, 1959] gave different groups of mice an integrated total of 1,000 r of X-rays over a period of 4 weeks. But the dose-rate - and therefore the radiation-free time between fractions - was varied from 81 r/hour intermittently to 1.3 r/hour continuously. The incidence of leukemia varied from 40 per cent (within 15 months of the start of irradiation) in the first group to 5 per cent in the last compared with 2 per cent incidence in irradiated controls. ...

‘What [Lewis](#) did, and which I have not copied, was to include in his table another group - spontaneous incidence of leukemia (Brooklyn, N.Y.) - who are taken to have received only natural background radiation throughout life at the very low dose-rate of 0.1-0.2 rad per year: the best estimate is listed as 2×10^{-6} like the others in the table. But the value of 2×10^{-6} was not calculated from the data as for the other groups; it was merely adopted. By its adoption and multiplication with the average age in years of Brooklyners - 33.7 years and radiation dose per year of 0.1-0.2 rad - a mortality rate of 7 to 13 cases per million per year due to background radiation was deduced, or some 10-20 per cent of the observed rate of 65 cases per million per year. ...

‘All these points are very much against the basic hypothesis of [Lewis](#) of a linear relation of dose to leukemic effect irrespective of time. Unhappily it is not possible to claim for [Lewis](#)’s work as others have done, “It is now possible to calculate - within narrow limits - how many deaths from leukemia will result in any population from an increase in fall-out or other source of radiation” [Leading article in *Science*, vol. 125, p. 963, 1957]. This is just wishful journalese.

‘The burning questions to me are not what are the numbers of leukemia to be expected from atom bombs or radiotherapy, but what is to be expected from natural background Furthermore, to obtain estimates of these, I believe it is wrong to go to [1950s inaccurate, dose rate effect ignoring, data from] atom bombs, where the radiations are qualitatively different [i.e., including effects from neutrons] and, more important, the dose-rate outstandingly different.’

[Samuel Glasstone and Philip J. Dolan](#), *The Effects of Nuclear Weapons*, 3rd ed., 1977, pp. 611-3:

‘From the earlier studies of radiation-induced mutations, made with fruitflies [by Nobel Laureate [Hermann J. Muller](#) and other geneticists who worked on plants, who falsely hyped their insect and plant data as valid for mammals like humans during the June 1957 U.S. Congressional Hearings on fallout effects], it appeared that the number (or frequency) of mutations in a given population ... is proportional to the total dose ... More recent experiments with mice, however, have shown that these conclusions need to be revised, at least for mammals. [*Mammals are biologically closer to humans, in respect to DNA repair mechanisms, than short-lived insects whose life cycles are too small to have forced the evolutionary development of advanced DNA repair mechanisms, unlike mammals that need to survive for decades before reproducing.*] When exposed to X-rays or gamma rays, the mutation frequency in these animals has been found to be dependent on the exposure (or dose) rate ...

‘At an exposure rate of 0.009 roentgen per minute [0.54 R/hour], the total mutation frequency in female mice is indistinguishable from the spontaneous frequency. [Emphasis added.] [There thus seems to be an exposure-rate threshold below which radiation-induced mutations are absent](#) ... with adult female mice ... a delay of at least seven weeks between exposure to a substantial dose of radiation, either neutrons or gamma rays, and conception causes the mutation frequency in the offspring to drop almost to zero. ... [recovery](#) in the female members of the population would bring about a substantial reduction in the ‘load’ of mutations in subsequent generations.’

George Bernard Shaw cynically explains groupthink brainwashing bias:

‘We cannot help it because we are so constituted that we always believe finally what we wish to believe. The moment we want to believe something, we suddenly see all the arguments for it and become blind to the arguments against it. The moment we want to disbelieve anything we have previously believed, we suddenly discover not only that there is a mass of evidence against, but that this evidence was staring us in the face all the time.’

From the essay titled ‘What is Science?’ by Professor Richard P. Feynman, presented at the fifteenth annual meeting of the National Science Teachers Association, 1966 in New York City, and published in *The Physics Teacher*, vol. 7, issue 6, 1968, pp. 313-20:

‘... great religions are dissipated by following form without remembering the direct content of the teaching of the great leaders. In the same way, it is possible to follow form and call it science, but that is pseudo-science. In this way, we all suffer from the kind of tyranny we have today in the many institutions that have come under the influence of pseudoscientific advisers.

‘We have many studies in teaching, for example, in which people make observations, make lists, do statistics, and so on, but these do not thereby become established science, established knowledge. They are merely an imitative form of science analogous to the South Sea Islanders’ airfields - radio towers, etc., made out of wood. The islanders expect a great airplane to arrive. They even build wooden airplanes of the same shape as they see in the foreigners’ airfields around them, but strangely enough, their wood planes do not fly. The result of this pseudoscientific imitation is to produce experts, which many of you are. ... you teachers, who are really teaching children at the bottom of the heap, can maybe doubt the experts. As a matter of fact, I can also define science another way: Science is the belief in the ignorance of experts.’

Richard P. Feynman, ‘This Unscientific Age’, in *The Meaning of It All*, Penguin Books, London, 1998, pages 106-9:

‘Now, I say if a man is absolutely honest and wants to protect the populace from the effects of radioactivity, which is what our scientific friends often say they are trying to do, then he should work on the biggest number, not on the smallest number, and he should try to point out that the [natural cosmic] radioactivity which is absorbed by living in the city of Denver is so much more serious [than the smaller doses from nuclear explosions] ... that all the people of Denver ought to move to lower altitudes.’

Feynman is *not* making a point about low level radiation effects, but about the politics of ignoring the massive natural background radiation dose, while provoking hysteria over much smaller measured fallout pollution radiation doses. Why is the anti-nuclear lobby so concerned about banning nuclear energy - which is not possible even in principle since most of our nuclear radiation is from the sun and from supernova debris contaminating the Earth from the explosion that created the solar system circa 4,540 million years ago - when they could cause much bigger radiation dose reductions to the population by concentrating on the bigger radiation source, natural background radiation. It is possible to shield natural background radiation by the air, e.g. by moving the population of high altitude cities to lower altitudes where there is more air between the people and outer space, or banning the use of high-altitude jet aircraft. The anti-nuclear lobby, as Feynman stated back in the 1960s, didn't crusade to reduce the bigger dose from background radiation. Instead they chose to argue against the *much smaller* doses from fallout pollution. Feynman's argument is still today falsely interpreted as a political statement, when it is actually exposing pseudo-science and countering political propaganda. It is still ignored by the media. It has been pointed out by Senator Hickenlooper on page 1060 of the May-June 1957 U.S. Congressional Hearings before the Special Subcommittee on Radiation of the Joint Committee on Atomic Energy, *The Nature of Radioactive Fallout and Its Effects on Man*:

'I presume all of us would earnestly hope that we never had to test atomic weapons ... but by the same token I presume that we want to save thousands of lives in this country every year and we could just abolish the manufacture of [road accident causing] automobiles ...'

Dihydrogen monoxide is a potentially very dangerous chemical containing hydrogen and oxygen which has caused numerous severe burns by scalding and deaths by drowning, contributes to the greenhouse effect, accelerates corrosion and rusting of many metals, and contributes to the erosion of our natural landscape: 'Dihydrogen monoxide (DHMO) is colorless, odorless, tasteless, and kills uncounted thousands of people every year. Most of these deaths are caused by accidental inhalation of DHMO, but the dangers of dihydrogen monoxide do not end there. Prolonged exposure to its solid form causes severe tissue damage. Symptoms of DHMO ingestion can include excessive sweating and urination, and possibly a bloated feeling, nausea, vomiting and body electrolyte imbalance. For those who have become dependent, DHMO withdrawal means certain death.'

From the site for the petition against dihydrogen monoxide: '[Please sign this petition and help stop This Invisible Killer. Get the government to do something now. ... Contamination Is Reaching Epidemic Proportions! Quantities of dihydrogen monoxide have been found in almost every stream, lake, and reservoir in America today. But the pollution is global, and the contaminant has even been found in Antarctic ice. DHMO has caused millions of dollars of property damage in the Midwest, and recently California.](#)'

A recent example of the pseudoscientific radiation 'education' masquerading as science that Feynman (quoted above) objected to in the 1960s was published in 2009 in an article called 'The proportion of childhood leukaemia incidence in Great Britain that may be caused by natural background ionizing radiation' in *Leukemia*, vol. 23 (2009), pp. 770–776, which falsely asserts - in contradiction to the evidence that the no-threshold model is *contrary* to Hiroshima and Nagasaki data: 'Risk models based primarily on studies of the Japanese atomic bomb survivors imply that low-level exposure to ionizing radiation, including ubiquitous natural background radiation, also raises the risk of childhood leukaemia. Using two sets of recently published leukaemia risk models and estimates of natural background radiation red-bone-marrow doses received by children, about 20% of the cases of childhood leukaemia in Great Britain are predicted to be attributable to this source.' The authors of this pseudoscience which is the opposite of the facts are R. Wakeford (Dalton Nuclear Institute, University of Manchester, Manchester, UK), G. M. Kendall (Childhood Cancer Research Group, Oxford, UK), and M. P. Little (Department of Epidemiology and Public Health, Imperial College, London, UK). It is disgusting and sinful that the facts about childhood leukemia are being lied on so blatantly for non-scientific purposes, and it is to be hoped that these leukemia investigators will either correct their errors or alternatively be banned from using scientific literature to promote false dogma for deception until they mend the error of their ways and repent their sins in this matter.

Protein P53, discovered only in 1979, is encoded by gene TP53, which occurs on human chromosome 17. P53 also occurs in other mammals including mice, rats and dogs. P53 is one of the proteins which continually repairs breaks in DNA, which easily breaks at body temperature: the DNA in each cell of the human body suffers at least two single strand breaks every second, and one double strand (i.e. complete double helix) DNA break occurs at least once every 2 hours (5% of radiation-induced DNA breaks are double strand breaks, while 0.007% of spontaneous DNA breaks at body temperature are double strand breaks)! Cancer occurs when several breaks in DNA happen to occur by chance at nearly the same time, giving several loose strand ends at once, which repair proteins like P53 then repair incorrectly, causing a mutation which can be proliferated somatically. This cannot occur when only one break occurs, because only two loose ends are produced, and P53 will reattach them correctly. But if low-LET ionising radiation levels are increased to a certain extent, causing more single strand breaks, P53 works faster and is able deal with faster breaks as they occur, so that multiple broken strand ends do not arise. This prevents DNA strands being repaired incorrectly, and prevents cancer - a result of mutation caused by faults in DNA - from arising. Too much radiation of course overloads the P53 repair mechanism, and then it cannot repair breaks as they occur, so multiple breaks begin to appear and loose ends of DNA are wrongly connected by P53, causing an increased cancer risk.

1. DNA-damaging free radicals are equivalent to a source of sparks which is always present naturally.
2. Cancer is equivalent the fire you get if the sparks are allowed to ignite the gasoline, i.e. if the free radicals are allowed to damage DNA without the damage being repaired.

3. Protein P53 is equivalent to a fire suppression system which is constantly damping out the sparks, or repairing the damaged DNA so that cancer doesn't occur.

In this way of thinking, the 'cause' of cancer will be down to a failure of a DNA repairing enzyme like protein P53 to repair the damage.

Dr Jane Orient, 'Homeland Security for Physicians', *Journal of American Physicians and Surgeons*, vol. 11, number 3, Fall 2006, pp. 75-9:

'In the 1960s, a group of activist physicians called Physicians for Social Responsibility (PSR) undertook to "educate the medical profession and the world about the dangers of nuclear weapons," beginning with a series of articles in the *New England Journal of Medicine*. [Note that journal was publishing information for anti-civil defense propaganda back in 1949, e.g. the article in volume 241, pp. 647-53 of *New England Journal of Medicine* which falsely suggests that civil defense in nuclear war would be hopeless because a single burned patient in 1947 with 40% body area burns required 42 oxygen tanks, 36 pints of plasma, 40 pints of whole blood, 104 pints of fluids, 4,300 m of gauze, 3 nurses and 2 doctors. First, only unclothed persons in direct line of sight without shadowing can get 40% body area burns from thermal radiation, second, duck and cover offers protection in a nuclear attack warning, and G. V. LeRoy had already published, two years earlier, in *J.A.M.A.*, volume 134, 1947, pp. 1143-8, that less than 5% of burns in Hiroshima and Nagasaki were caused by building and debris fires. In medicine it is always possible to expend vast resources on patients who are fatally injured. In a mass casualty situation, doctors should not give up just because they don't have unlimited resources; as at Hiroshima and Nagasaki, they would need to do their best with what they have.] On its website, www.psr.org, the group boasts that it "led the campaign to end atmospheric nuclear testing." With this campaign, the linear no-threshold (LNT) theory of radiation carcinogenesis became entrenched. It enabled activists to calculate enormous numbers of potential casualties by taking a tiny risk and multiplying it by the population of the earth. As an enduring consequence, the perceived risks of radiation are far out of proportion to actual risks, causing tremendous damage to the American nuclear industry. ... Efforts to save lives were not only futile, but unethical: Any suggestion that nuclear war could be survivable increased its likelihood and was thus tantamount to warmongering, PSR spokesmen warned. ...

'For the mindset that engendered and enables this situation, which jeopardizes the existence of the United States as a nation as well as the lives of millions of its citizens, some American physicians and certain prestigious medical organizations bear a heavy responsibility.

'Ethical physicians should stand ready to help patients to the best of their ability, and not advocate sacrificing them in the name of a political agenda. Even very basic knowledge, especially combined with simple, inexpensive advance preparations, could save countless lives.'

Dr Theodore B. Taylor, *Proceedings of the Second Interdisciplinary Conference on Selected Effects of a General War*, DASIAC Special Report 95, July 1969, vol. 2, DASA-2019-2, AD0696959, page 298 (also [linked here](#)):

'I must just say that as far as I'm concerned I have had some doubts about whether we should have had a civil defense program in the past. I have no doubt whatsoever now, for this reason, that I've seen ways in which the deterrent forces can fail to hold things off, so that no matter what our national leaders do, criminal organizations, what have you, groups of people over which we have no control whatsoever, can threaten other groups of people.'

This point of Taylor is the key fact on the morality. Suppose we disarm and abandon nuclear power. That won't stop fallout from a war, terrorists, or a foreign reactor blast from coming. Civil defence knowledge is needed. Even when America has ABM, it will be vulnerable to wind carried fallout. No quantity of pacifist hot air will protect people against radiation.

Charles J. Hitch and Roland B. McKean of the RAND Corporation in their 1960 book *The Economics of Defense in the Nuclear Age*, Harvard University Press, Massachusetts, pp. 310-57:

'With each side possessing only a small striking force, a small amount of cheating would give one side dominance over the other, and the incentive to cheat and prepare a preventative attack would be strong ... With each side possessing, say, several thousand missiles, a vast amount of cheating would be necessary to give one side the ability to wipe out the other's striking capability. ... the more extensive a disarmament agreement is, the smaller the force that a violator would have to hide in order to achieve complete domination. Most obviously, "the abolition of the weapons necessary in a general or 'unlimited' war" would offer the most insuperable obstacles to an inspection plan, since the violator could gain an overwhelming advantage from the concealment of even a few weapons.'

Disarmament after World War I caused the following problem which led to World War II (reported by Winston S. Churchill in the London Daily Express newspaper of November 1, 1934):

'Germany is arming secretly, illegally and rapidly. A reign of terror exists in Germany to keep secret the feverish and terrible preparations they are making.'

British Prime Minister Thatcher's address to the United Nations General Assembly on disarmament on 23 June 1982, where she pointed out that in the years since the nuclear attacks on Hiroshima and Nagasaki, 10 million people had been killed by 140 non-nuclear conflicts:

'The fundamental risk to peace is not the existence of weapons of particular types. It is the disposition on the part of some states to impose change on others by resorting to force against other nations ... Aggressors do not start wars because an adversary has built up his own strength. They start wars because they believe they can gain more by going to war than by remaining at peace.'

J. D. Culshaw, the then Director of the U.K. Home Office Scientific Advisory Branch, stated in his article in the Scientific Advisory Branch journal *Fission Fragments*, September 1972 (issue No. 19), classified 'Restricted':

'Apart from those who don't want to know or can't be bothered, there seem to be three major schools of thought about the nature of a possible Third World War ...

* 'The first group think of something like World War II but a little worse ...

* '... the second of World War II but very much worse ...

* 'and the third group think in terms of a catastrophe ...

'When the Armageddon concept is in favour, the suggestion that such problems exist leads to "way out" research on these phenomena, and it is sufficient to mention a new catastrophic threat [e.g., 10 years later this was done by Sagan with "nuclear winter" hype, which turned out to be fake because modern concrete cities can't produce firestorms like 1940s wooden-built areas of Hamburg, Dresden and Hiroshima] to stimulate research into the possibilities of it arising. The underlying appeal of this concept is that if one could show that the execution of all out nuclear, biological or chemical warfare would precipitate the end of the world, no one but a mad man would be prepared to initiate such a war. [However, as history proves, plenty of mad men end up gaining power and leading countries into wars.]'

J. K. S. Clayton, then Director of the U.K. Home Office Scientific Advisory Branch, stated in his introduction, entitled *The Challenge - Why Home Defence?*, to the 1977 Home Office Scientific Advisory Branch *Training Manual for Scientific Advisers*:

'Since 1945 we have had nine wars - in Korea, Malaysia and Vietnam, between China and India, China and Russia, India and Pakistan and between the Arabs and Israelis on three occasions. We have had confrontations between East and West over Berlin, Formosa and Cuba. There have been civil wars or rebellions in no less than eleven countries and invasions or threatened invasions of another five. Whilst it is not suggested that all these incidents could have resulted in major wars, they do indicate the aptitude of mankind to resort to a forceful solution of its problems, sometimes with success. ...'

It is estimated that Mongol invaders exterminated 35 million Chinese between 1311-40, without modern weapons. Communist Chinese killed 26.3 million dissenters between 1949 and May 1965, according to detailed data compiled by the Russians on 7 April 1969. The Soviet communist dictatorship killed 40 million dissenters, mainly owners of small farms, between 1917-59. Conventional (non-nuclear) air raids on Japan killed 600,000 during World War II. The single incendiary air raid on Tokyo on 10 March 1945 killed 140,000 people (more than the total for nuclear bombs on Hiroshima and Nagasaki combined) at much less than the \$2 billion expense of the Hiroshima and Nagasaki nuclear bombs! Non-nuclear air raids on Germany during World War II killed 593,000 civilians. The argument that the enemy will continue stocking megaton fallout weapons if we go to cleaner weapons is irrelevant for deterrence, since we're not planning to start war, just to credibly deter invasions. You should not try to lower your standards of warfare to those of your enemy to appease groupthink taboos, or you will end up like Britain's leaders in the 1930s, trying to collaborate with fascists for popular applause.

House of Lords debate *Nuclear Weapons: Destructive Power*, published in Hansard, 14 June 1988:

Lord Hailsham of Saint Marylebone: 'My Lords, if we are going into the question of lethality of weapons and seek thereby to isolate the nuclear as distinct from the so-called conventional range, is there not a danger that the public may think that Vimy, Passchendaele and Dresden were all right—sort of tea parties—and that nuclear war is something which in itself is unacceptable?'

Lord Trefgarne: 'My Lords, the policy of making Europe, or the rest of the world, safe for conventional war is not one that I support.'

House of Commons debate *Civil Defence* published in Hansard, 26 October 1983:

Mr. Bill Walker (Tayside, North): 'I remind the House that more people died at Stalingrad than at Hiroshima or Nagasaki. Yet people talk about fighting a conventional war in Europe as if it were acceptable. One rarely sees demonstrations by the so-called peace movement against a conventional war in Europe, but it could be nothing but ghastly and horrendous. The casualties would certainly exceed those at Stalingrad, and that cannot be acceptable to anyone who wants peace'

On 29 October 1982, Thatcher stated of the Berlin Wall: 'In every decade since the war the Soviet leaders have been reminded that their pitiless ideology only survives because it is maintained by force. But the day comes when the anger and frustration of the people is so great that force cannot contain it. Then the edifice cracks: the mortar crumbles ... one day, liberty will dawn on the other side of the wall.'

On 22 November 1990, she said: 'Today, we have a Europe ... where the threat to our security from the overwhelming conventional forces of the Warsaw Pact has been removed; where the Berlin Wall has been torn down and the Cold War is at an end. These immense changes did not come about by chance. They have been achieved by strength and resolution in defence, and by a refusal ever to be intimidated.'

'The case for civil defence stands regardless of whether a nuclear deterrent is necessary or not. ... Even if the U.K. were not itself at war, we would be as powerless to prevent fallout from a nuclear explosion crossing the sea as was King Canute to stop the tide.' - U.K. Home Office leaflet, *Civil Defence*, 1982.

'... peace cannot be guaranteed absolutely. Nobody can be certain, no matter what policies this or any other Government were to adopt, that the United Kingdom would never again be attacked. Also we cannot tell what form such an attack might take. Current strategic thinking suggests that if war were to break out it would start with a period of conventional hostilities of uncertain duration which might or might not escalate to nuclear conflict. ... while nuclear weapons exist there must always be a chance, however small, that they will be used against us [like gas bombs in World War II]. ... as a consequence of war between other nations in which we were not involved fall out from nuclear explosions could fall on a neutral Britain. ... conventional war is not the soft option that is sometimes suggested. It is also too easily forgotten that in World War II some 50 million people died and that conventional weapons have gone on killing people ever since 1945 without respite.' - - [The Minister of State, Scottish Office \(Lord Gray of Contin\), House of Lords debate on Civil Defence \(General Local Authority Functions\) Regulations, Hansard, vol. 444, cc. 523-49, 1 November 1983.](#)

'All of us are living in the light and warmth of a huge hydrogen bomb, 860,000 miles across and 93 million miles away, which is in a state of continuous explosion.' - Dr Isaac Asimov.

'Dr Edward Teller remarked recently that the origin of the earth was somewhat like the explosion of the atomic bomb...' - Dr Harold C. Urey, *The Planets: Their Origin and Development*, Yale University Press, New Haven, 1952, p. ix.

'But compared with a supernova a hydrogen bomb is the merest trifle. For a supernova is equal in violence to about a million million million million hydrogen bombs all going off at the same time.' - Sir Fred Hoyle (1915-2001), *The Nature of the Universe*, Pelican Books, London, 1963, p. 75.

'In fact, physicists find plenty of interesting and novel physics in the environment of a nuclear explosion. Some of the physical phenomena are valuable objects of research, and promise to provide further understanding of nature.' - Dr Harold L. Brode, The RAND Corporation, 'Review of Nuclear Weapons Effects,' *Annual Review of Nuclear Science*, Volume 18, 1968, pp. 153-202.

'It seems that similarities do exist between the processes of formation of single particles from nuclear explosions and formation of the solar system from the debris of a 4×10^{28} megatons of TNT equivalent, type Ia supernova explosion. We may be able to learn much more about the origin of the earth, by further investigating the process of radioactive fallout from the nuclear weapons tests.' - [Dr Paul K. Kuroda \(1917-2001\)](#), University of Arkansas, 'Radioactive Fallout in Astronomical Settings: Plutonium-244 in the Early Environment of the Solar System,' pages 83-96 of [Radionuclides in the Environment: A Symposium Sponsored By the Division of Nuclear Chemistry and Technology At the 155th Meeting of the American Chemical Society, San Francisco, California, April 1-3, 1968](#), edited by Symposium Chairman Dr Edward C. Freiling (1922-2000) of the U.S. Naval Radiological Defense Laboratory, Advances in Chemistry Series No. 93, American Chemical Society, Washington, D.C., 1970.

[Dr Paul K. Kuroda \(1917-2001\)](#) in 1956 correctly predicted the existence of water-moderated natural nuclear reactors in flooded uranium ore seams, which were discovered in 1972 by French physicist Francis Perrin in three ore deposits at Oklo in Gabon, where sixteen sites operated as natural nuclear reactors with self-sustaining nuclear fission 2,000 million years ago, each lasting several hundred thousand years, averaging 100 kW. The radioactive waste they generated remained in situ for a period of 2,000,000,000 years without escaping. They were discovered during investigations into why the U-235 content of the uranium in the ore was only 0.7171% instead of the normal 0.7202%. Some of the ore, in the middle of the natural reactors, had a U-235 isotopic abundance of just 0.440%. Kuroda's brilliant paper is entitled, 'On the Nuclear Physical Stability of the Uranium Minerals', published in the *Journal of Chemical Physics*, vol. 25 (1956), pp. 781-782 and 1295-1296.

A type Ia supernova explosion, always yielding 4×10^{28} megatons of TNT equivalent, results from the critical mass effect of the collapse of a white dwarf as soon as its mass exceeds 1.4 solar masses due to matter falling in from a companion star. The degenerate electron gas in the white dwarf is then no longer able to support the pressure from the weight of gas, which collapses, thereby releasing enough gravitational potential energy as heat and pressure to cause the fusion of carbon and oxygen into heavy elements, creating massive amounts of radioactive nuclides, particularly intensely radioactive nickel-56, but half of all other nuclides (including uranium and heavier) are also produced by the '[R' \(rapid\) process of successive neutron captures by fusion products in supernovae explosions](#)'. Type Ia supernovae occur typically every 400 years in the Milky Way galaxy. On 4 July 1054, Chinese astronomers observed in the sky (without optical instruments) the bright supernova in the constellation Taurus which today is still visible as the Crab Nebula through telescopes. The Crab Nebula debris has a diameter now of 7 light years and is still expanding at 800 miles/second. The supernova debris shock wave triggers star formation when it encounters hydrogen gas in space by compressing it and seeding it with debris; bright stars are observed in the Orion Halo, the 300 light year diameter remains of a supernova. It is estimated that when the solar system was forming 4,540 million years ago, a supernova occurred around 100 light years away, and the heavy radioactive debris shock wave expanded at 1,000 miles/second. Most of the heavy elements including iron, silicon and calcium in the Earth and people are the stable end products of originally radioactive decay chains from the space burst fallout of a 7×10^{26} megatons thermonuclear explosion, created by fusion and successive neutron captures after the implosion of a white dwarf; a supernova explosion.

How would a 10^{55} megaton hydrogen bomb explosion differ from the [big bang](#)? Ignorant answers biased in favour of curved spacetime (ignoring quantum gravity!) abound, such as claims that explosions can't take place in 'outer space' (disagreeing with the facts from nuclear space bursts by Russia and America in 1962, not to mention natural supernova explosions in space!) and that explosions produce sound waves in air by definition! There are indeed major differences in the nuclear reactions between the big bang and a nuclear bomb. But it is helpful to notice the solid physical fact that implosion systems suggest the mechanism of gravitation: in implosion, TNT is well-known to produce an *inward* force on a bomb core, but

Newton's 3rd law says there is an equal and opposite reaction force *outward*. In fact, you can't have a radially outward force without an inward reaction force! It's the rocket principle. The rocket accelerates (with force $F = ma$) *forward* by virtue of the recoil from accelerating the exhaust gas (with force $F = -ma$) in the *opposite* direction! Nothing massive accelerates without an equal and opposite reaction force. Applying this *fact* to the measured $6 \times 10^{-10} \text{ ms}^{-2} \sim Hc$ cosmological acceleration of matter radially outward from observers in the universe which was predicted accurately in 1996 and later observationally discovered in 1999 (by Perlmutter, et al.), we find an outward force $F = ma$ and inward reaction force by the 3rd law. The inward force allows quantitative predictions, and is mediated by gravitons, predicting gravitation in a checkable way (unlike string theory, which is just a landscape of 10^{500} different perturbative theories and so can't make any falsifiable predictions about gravity). So it seems as if nuclear explosions do indeed provide helpful analogies to natural features of the world, and the mainstream lambda-CDM model of cosmology - with its force-fitted unobserved *ad hoc* speculative 'dark energy' - ignores and sweeps under the rug major quantum gravity effects which increase the physical understanding of particle physics, particularly force unification and the relation of gravitation to the existing electroweak SU(2) x U(1) section of the Standard Model of fundamental forces.

Richard Lieu, Physics Department, University of Alabama, 'Lambda-CDM cosmology: how much suppression of credible evidence, and does the model really lead its competitors, using all evidence?', <http://arxiv.org/abs/0705.2462>.

Even Einstein grasped the possibility that general relativity's lambda-CDM model is at best just a classical approximation to quantum field theory, at the end of his life when he wrote to Besso in 1954:

'I consider it quite possible that physics cannot be based on the [classical differential equation] field principle, i.e., on continuous structures. In that case, nothing remains of my entire castle in the air, [non-quantum] gravitation theory included ...'

'Science is the organized skepticism in the reliability of expert opinion.' - Professor Richard P. Feynman (quoted by Professor Lee Smolin, *The Trouble with Physics*, Houghton-Mifflin, New York, 2006, p. 307).

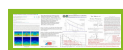
'The expression of dissenting views may not seem like much of a threat to a powerful organization, yet sometimes it triggers an amazingly hostile response. The reason is that a single dissenter can puncture an illusion of unanimity. ... Among those suppressed have been the engineers who tried to point out problems with the Challenger space shuttle that caused it to blow up. More fundamentally, suppression is a denial of the open dialogue and debate that are the foundation of a free society. Even worse than the silencing of dissidents is the chilling effect such practices have on others. For every individual who speaks out, numerous others decide to play it safe and keep quiet. More serious than external censorship is the problem of self-censorship.'

— Professor Brian Martin, University of Wollongong, 'Stamping Out Dissent', Newsweek, 26 April 1993, pp. 49-50

In 1896, Sir James Mackenzie-Davidson asked Wilhelm Röntgen, who discovered X-rays in 1895: 'What did you think?' Röntgen replied: 'I did not think, I investigated.' The reason? Cathode ray expert J. J. Thomson in 1894 saw glass fluorescence far from a tube, but due to prejudice (expert opinion) he avoided investigating that X-ray evidence! 'Science is the organized skepticism in the reliability of expert opinion.' - Richard Feynman, in Lee Smolin, *The Trouble with Physics*, Houghton-Mifflin, 2006, p. 307.

Mathematical symbols in this blog: your computer's browser needs access to standard character symbol sets to display Greek symbols for mathematical physics. If you don't have the symbol character sets installed, the density symbol ' ρ ' (*Rho*) will appear as 'r' and the ' π ' (*Pi*) symbol will as 'p', causing confusion with the use of 'r' for radius and 'p' for momentum in formulae. This problem exists with Mozilla Firefox 3, but not with Microsoft Explorer which displays Greek symbols.

About Me



Name: [nige](#)

Currently designing secure active server page (ASP) front ends for client SQL databases. In 1982 I began programming in basic, and at college learned Fortran while a physics undergraduate a decade later. Afterwards, I switched from mainstream physics and mathematical education to part-time programming student, while working in a series of jobs including four years in credit control. [www.quantumfieldtheory.org](http://glasstone.blogspot.co.uk/2015/07/capabilities-of-nuclear-weapons.html) <http://glasstone.blogspot.co.uk/2015/07/capabilities-of-nuclear-weapons.html> <http://www.math.columbia.edu/~woit/wordpress/?p=273#comment-5322> <http://www.math.columbia.edu/~woit/wordpress/?p=353&page=1#comment-8728> <http://www.math.columbia.edu/~woit/wordpress/?p=215#comment-4082>.

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From 1945-62, America tested 216 nuclear weapons in the atmosphere, totalling 154 megatons, with a mean yield of 713 kilotons

From 1949-62, Russia tested 214 nuclear weapons in the atmosphere, totalling 281 megatons, with a mean yield of 1.31 megatons

From 1952-8, Britain tested 21 nuclear weapons in the atmosphere, totalling 10.8 megatons, with a mean yield of 514 kilotons

From 1960-74, France tested 46 nuclear weapons in the atmosphere, totalling 11.4 megatons, with a mean yield of 248 kilotons

From 1964-80, China tested 23 nuclear weapons in the atmosphere, totalling 21.5 megatons, with a mean yield of 935 kilotons

In summary, from 1945-80, America, Russia, Britain, France and China tested 520 nuclear weapons in the atmosphere, totalling 478.7 megatons, with a mean yield of 921 kilotons

Mean yield of the 5,192 nuclear warheads and bombs in the deployed Russian nuclear stockpile as of January 2009: 0.317 Mt. Total yield: 1,646 Mt.

Mean yield of the 4,552 nuclear warheads and bombs in the deployed U.S. nuclear stockpile as of January 2007: 0.257 Mt. Total yield: 1,172 Mt.

For diffraction damage where damage areas scale as the two-thirds power of explosive yield, this stockpile's area damage potential can be compared to the 20,000,000 conventional bombs of 100 kg size (2 megatons of TNT equivalent total *energy*) dropped on Germany during World War II: (Total nuclear bomb blast diffraction damaged ground *area*)/(Total conventional blast diffraction damaged ground *area* to Germany during World War II) = $[4,552 \times (0.257 \text{ Mt})^{2/3}] / [20,000,000 \times (0.0000001 \text{ Mt})^{2/3}] = 1,840/431 = 4.3$. Thus, although the entire U.S. stockpile has a TNT *energy* equivalent to 586 times that of the 2 megatons of conventional bombs dropped on Germany in World War II, it is only capable of causing 4.3 times as much diffraction type damage area, because *any given amount of explosive energy is far more efficient when distributed over many small explosions than in a single large explosion! Large explosions are inefficient because they cause unintended collateral damage, wasting energy off the target area and injuring or damaging unintended targets!*

In a controlled sample of 36,500 survivors, 89 people got leukemia over a 40 year period, above the number in the unexposed control group. (Data: *Radiation Research*, volume 146, 1996, pages 1-27.) Over 40 years, in 36,500 survivors monitored, there were 176 leukemia deaths which is 89 more than the control (unexposed) group got naturally. There were 4,687 other cancer deaths, but that was merely 339 above the number in the control (unexposed) group, so this is statistically a much smaller rise than the leukemia result. Natural leukemia rates, which are very low in any case, were increased by 51% in the irradiated survivors, but other cancers were merely increased by just 7%. Adding all the cancers together, the total was 4,863 cancers (virtually all natural cancer, nothing whatsoever to do with radiation), which is just 428 more than the unexposed control group. Hence, the total increase over the natural cancer rate due to bomb exposure was only 9%, spread over a period of 40 years. There was no increase whatsoever in genetic malformations.

There should be a note here about how unnatural radioactive pollution is (not) in space: the earth's atmosphere is a radiation shield equivalent to being protected behind a layer of water 10 metres thick. This reduces the cosmic background radiation by a factor of 100 of what it would be without the earth's atmosphere. Away from the largely uninhabited poles, the Earth's magnetic field also protects us against charged cosmic radiations, which are deflected and end up spiralling around the magnetic field at high altitude, in the Van Allen trapped radiation belts. *On the Moon, for example, there is no atmosphere or significant magnetic field so the natural background radiation exposure rate at solar minimum is 1 milliRoentgen per hour (about 10 microSieverts/hour) some 100 times that on the Earth (0.010 milliRoentgen per hour or about 0.10 microSieverts/hour). The Apollo astronauts visiting the Moon wore dosimeters and they received an average of 275 milliRoentgens (about 2.75 milliSieverts) of radiation (well over a year's exposure to natural background at sea level) in over just 19.5 days. It is a lot more than that during a solar flare, which is one of the concerns for astronauts to avoid (micrometeorites are another concern in a soft spacesuit).*

The higher up you are above sea level, the less of the atmosphere there is between you and space, so the less shielding you have to protect you from the intense cosmic space radiations (emitted by thermonuclear reactors we call 'stars', as well as distant supernovae explosions). At sea level, the air above you constitutes a radiation shield of 10 tons per square metre or the equivalent of having a 10 metres thick water shield between you and outer space. As you go up a mountain or up in an aircraft, the amount of atmosphere between you and space decreases, thus radiation levels increase with altitude because there is less shielding. *The normal background radiation exposure rate shoots up by a factor of 20, from 0.010 to 0.20 milliRoentgens per hour, when any airplane ascends from sea level to 36,000 feet cruising altitude.* (The now obsolete British Concorde supersonic transport used to maintain radiation-monitoring equipment so that it could drop to lower-altitude flight routes if excessive cosmic radiation due to solar storms were detected.) Flight aircrew get more radiation exposure than many nuclear industry workers at nuclear power plants. Residents of the high altitude city of Denver get 100 milliRoentgens (about 1 milliSievert) more annual exposure than a resident of Washington, D.C., but the mainstream anti-radiation cranks don't campaign for the city to be shut to save kids radiation exposure, for mountain climbing to be banned, etc.!

1994 revised Introduction to Kearny's Nuclear War Survival Skills, by Dr Edward Teller, January 14, 1994:

'If defense is neglected these weapons of attack become effective. They become available and desirable in the eyes of an imperialist dictator, even if his means are limited. Weapons of mass destruction could become equalizers between nations big and small, highly developed and primitive, if defense is neglected. If defense is developed and if it is made available for general prevention of war, weapons of aggression will become less desirable. Thus defense makes war itself less probable. ... One psychological defense mechanism against danger is to forget about it. This attitude is as common as it is disastrous. It may turn a limited danger into a fatal difficulty.'

Advice of Robert Watson-Watt (Chief Scientist on the World War II British Radar Project, defending Britain against enemy attacks): 'Give them the third best to go on with, the second best comes too late, the best never comes.'

From Wikipedia (a source of groupthink): 'Groupthink is a type of thought exhibited by group members who try to minimize conflict and reach consensus without critically testing, analyzing, and evaluating ideas. Individual creativity, uniqueness, and independent thinking are lost in the pursuit of group cohesiveness, as are the advantages of reasonable balance in choice and thought that might normally be obtained by making decisions as a group. During groupthink, members of the group avoid promoting viewpoints outside the comfort zone of consensus thinking. A